WARNING

Kitesurfen ist gefährlich
Kitesurfen ist ein gefährlicher Sport, der Risiken für den Sportler und auch Andere beinhaltet.
Unsachgemäße Bedienung des Kites kann zu schweren Verletzungen und auch zum Tod des Nutzers und Anderen führen!

Selbstverantwortung
Der Nutzer trägt die alleinige Verantwortung für sich und andere beim Gebrauch des Kites.
Der Nutzer hat den Kite, die Bar und sämtliche Verschleißteile vor der Nutzung auf korrekte Funktion zu überprüfen.
Jeder Nutzer muss vor der Nutzung dieses Kites eine qualifizierte Schulung absolviert haben.
Die beiliegende Gebrauchsanweisung (Manual) muss unbedingt vor Gebrauch gelesen werden.
Den Anweisungen im Manual ist strikt zu folgen.
Die Gebrauchsanweisung (Manual) ist auch unter www.flysurfer.com als Download erhältlich.

Nicht Fliegen mit dem Kite
Dieser Kite darf keinesfalls zum Fliegen verwendet werden. Er ist nicht als Fluggerät geprüft und nicht zugelassen. Dieser Kite erfüllt nicht die Festigkeitsanforderungen für Fluggeräte (wie z.B. Paraglider). Der Gebrauch als Fluggerät ist luftrechtlich und versicherungsrechtlich illegal. Fliegen mit diesem Kite ist lebensgefährlich!

Niemals Kiten
- alleine
- bei ablandigem Wind
- in der Nähe von Stromleitungen, Straßen, Flughäfen, Gebäuden, Abgründen etc.
- ohne Quick Release in Verbindung mit Safety-Leash
- bei stürmischen Winden
- in der Nähe von Menschen oder Hindernissen

Kitesurfing is dangerous
Kitesurfing is a dangerous sport, involving risk for the athlete and for others.
Improper use of a kite can lead to serious injury and also to the death of the kite user or others!

Personal Responsibility
The user alone bears the responsibility for himself and others when the kite is in use.
Every user must complete a qualified training before using this kite.

Regular Maintenance of kite and bar must be performed by the user, including checking all parts of the kite before each use.

Before using the kite, the enclosed operating manual must unconditionally be read. The instructions should be followed strictly.
The instruction manual is also available for download at www.flysurfer.com.

Do not fly with this Kite
This kite should not be used to fly under any circumstances. It is not tested as an aircraft and is not certified for flight. This kite does not fulfill the strength standards for an aircraft (like e.g. Paraglider). Utilisation as an aircraft is illegal by air- and insurance-law. Flying with this kite poses a lethal hazard!

Never kite:
- alone
- in offshore winds
- in proximity to power lines, streets, airports, buildings, cliffs, etc.
- without a quick release in connection with safety-leash
- in stormy winds
- in proximity to people or obstacles

Kitesurf es peligroso
Kitesurf es un deporte peligroso que alberga riesgos para el deportista y para otros.
¡El manejo inadecuado del kite puede causar heridas graves y puede incluso causar la muerte del usuario u otros!

Propia Responsabilidad
El usuario tiene la responsabilidad única para sí mismo y para otros mientras usa el kite.
Cada usuario debe pasar por una capacitación cualificada antes de usar el kite.
Es de necesidad absoluta leer el manual anexo antes del uso.
Debe seguir estrictamente las indicaciones del manual.
El manual de uso está disponible para descarga en la página www.flysurfer.com.

¡Prohibido volar con el kite!
Este kite no debe usarse para volar de ninguna manera. No dispone de las revisiones y permisos necesarios para dispositivos para volar. Este kite no cumple con los requisitos necesarios de dispositivos para volar (como p.e. los parapentes). De acuerdo con la Ley Aérea y la Ley de Seguros, su uso como dispositivo para volar es ilegal. ¡Tome en cuenta que volar con este kite comprende un riesgo mortal!

Nunca use el kite
- cuando está solo
- con viento fuerte
- cerca de conductos de electricidad, calles, aeropuertos, edificios, precipicios, etc.
- sin Quick Release (mecanismo que permite liberar una línea o cabo en tensión en un instante) junto con la correa de seguridad
- con vientos tempestuosos
- cerca de personas u obstáculos

Faire du kite-surf est dangereux
Le kitesurf est un sport dangereux, qui présente des risques pour les sportifs et de même pour d'autres personnes. La mauvaise utilisation du kite peut causer de graves blessures et même la mort de l'utilisateur et d' autres personnes!

Responsabilité
En utilisant le kite, l'utilisateur porte son entière responsabilité de soi-même et des autres personnes.
Avant l'usage de ce kite, chaque utilisateur doit avoir effectué une formation qualifiée. Le mode d'emploi ci- inclus (manuel) est également disponible en téléchargement sur le site web www.flysurfer.com.

Ne pas voler avec le kite
Il ne faut absolument pas utiliser ce kite pour voler. Il n'est ni examiné ni autorisé comme engin volant. Le kite ne remplit pas les conditions de fermeté posées à des engins volants (comme p.ex. le parapente).
L'usage comme engin volant est illégal et n'est pas legitimisé par la législation aérienne et la législation des assurances. Voler avec ce kite présente un risque mortel!

Ne jamais faire du kitesurf
- seul
- lorsqu'il y a du vent de terre
- près des lignes de courant, des rues, des aéroports, des bâtiments, des abîmes, etc.
- sans Quick Release attaché au Safety-Leash
- lors d'une tempête
- près des personnes ou des obstacles

FLYSURFER
KITEBOARDING

SPEED 2

USERMANUAL

CONTENTS

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. Your kite is built for kiters which have a weight of at least 40kg but no more than 120kg.
Delivery conditions:
Your FLYSURFER kite 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. YOUR FLYSURFER KITE

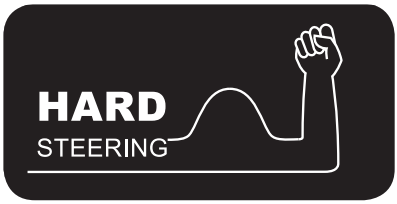
2.1. DESCRIPTION

With the new FLYSURFER kites, 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 your kite in a previously unachievable windrange!

2.2 FEATURES

- FULL DEPOWER BAR (FDB)
- MAX DE-/POWER LEINEN-SYSTEM (MDPL)
- FRONT-LINE-SAFETY (FLS)
  Optional: FULL DEPOWER SAFETY LINE (FDS)

In addition this kite 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.



3. FLYSURFER 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 DE-/POWER LINE-SYSTEM (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 your FLYSURFER kite or for your 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. Maximum Power, maximum Depower, maximum safety and maximum fun!

3. SAFETY-LEASH-VARIANTS:

For the first time Flysurfer provides with the new FRONT-LINE-SAFETY (FLS) a safety system for foil kites that requires 4 flying lines only and nevertheless lets the kite blow out with an extremely low remaining pull.

With the FULL DEPOWER SAFETYLINE (FDS) proven in the PULSE and PSYCHO3 there is another option which facilitates, beside an extremely low remaining pull, the possibility to always pack the kite properly and thus easily relaunch it.

These safety systems guarantee that the kiter will never lose control even under extremely deteriorating weather conditions and will never have to detach completely from the kite, as it is required by some other massive-depower-systems on the market.

3.1.1. FULL DEPOWER BAR (FDB)

All Leaderlines have the same lenght.

3.1.1.1. ACTIVATION AND REASSEMBLY OF THE QUICK RELEASE AT THE DEPOWERLOOP

You can activate the FLYSURFER Safety System while using the Quick Release at the Depowerloop or unhooking it by hand and not holding to the bar.
To activate the Quick Release pull the red ball at the Depowerloop towards your body.
This motion sequence should be trained blindly and with both hands.

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 LINE-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

Due to the Depowersystem it is possible to remain in control of the kite when the strength of the wind increases. However in extreme situations it might still be necessary to activate the Depower-Quick-Release system. To stop the kite from flying away when this system is activated the kite is secured via a Kite-Leash.
All FS KITE-LEASHES are also equipped with a separate Quick-Release.
KITE-LEASH Quick Release: The Quick Release on the KITE-LEASH can be activated by pushing the red plastic cylinder away from you. By activating this Quick Release you can completely detach yourself from the kite providing that you are already disconnected from the Depowerloop Quick Release.
The KITE-LEASH Quick Release should be used if you are still in danger despite having already activated the Depowerloop Quick Release. (e.g. if the kite has tangled in a ship propeller, or is tangled with another kite).Please be aware that when you completely release yourself from the kite, the kite could fly downwind and endanger other people.

3.1.3.1. FRONT-LINE-SAFETYLINE (FLS)

In an emergency the FLS lets the kite blow out on one front line.
In order to use the FLS, your Safety Leash must be connected with the steel ring of the FLS ending up at the Depowerloop.

After an emergency release the bar slides a few meters upwards along a front line till it reaches a stopper (ELC in the front line).
To relaunch reach carefully along a front line till you get to the bar. Now you can reassamble the Depowerloop and then hook into the harness. Afterward let carefully go of the pulled front line and then relaunch the kite forward or backward depending on its position.

Attention: Never wrap the lines around fingers, hands or other body parts when launching the kite! This might cause severe injuries as soon as the lines get pulled!

The bar can be easily unwinded after rotations. Though the front lines get twisted while practising a high number of rotations in the same direction (analogical to most of the 4–line inflatable kites). If the lines are extremely twisted, the safety function might be restricted!

Therefore you should check before every relaunch if the front lines are twisted. If this is the case, you can untangle the lines by unwinding the Depowerloop and the Trimmer.

While riding particularly consider that the leash is never tangled up. The leash must not be winded several times around the depower strap or even the bar, as the safety system might not work anymore or not efficiently. Consequently you should keep an eye on the leash while riding and arrange it with the hand if necessary.

The remaining pull with the FLS system is low. Though it can not be excluded that when releasing the FSL the kite doesn`t get tangled in the lines and can`t be relaunched.
As a result of this huge depower range of the SPEED2 the safety function must be activated only very rarely. In such a case though the FLS provides reliable safety without having to detach from the kite completely, as it is the case at some other massive depower kites on the market.

3.1.3.2. 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 possible to relaunch the kite.
There's a partiel breaking point between the FDS-Endline and the ELC-Stopper.
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.

Despite the FDS, it is extremely important never to leave the normal wind area.
The FDS is just an addition to protect others if the kite should fly away when it is detached.
Damage of the kite isn't impossible when outside of the normal wind area.

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 not be tangled up. If this should happen, you can untangle the trimmer and the depowerloop by unwinding them. 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.

3.1.3.3. 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 Unhooked-Leash 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 end-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.

To prevent this from happening, it is possible to hook oneself into the FDS. This way the kite goes into the safety mode when the depowerloop is triggered.

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.

Attention: the safety leash should not be attached above the depowerloop. As a consequense of huge leverage the shakle might break! This means you would lose your kite.

3.1.3.4. COMBINED DEPOWERLOOP-LEASH WITH FLS OR FDS

This variant is, as the pure depowerloop leash, only reasonable for very experienced riders as well as for unhooked riding, eg. handlepass tricks.

For unhooked tricks you are connected with the depowerloop, likewise at the depowerloop leash described before.

If you let go off the bar while the depowerloop is unhooked, the kite does not turn into the safety modus. It will only reduce it`s power by means of the depower system.

If you are hooked into the depowerloop (normal riding), in emergency you can pull the Quick Release at the depowerloop as usual. Consequently you are attached to the FDS or FLS only (depending on the system set up) and the kite turns into the safety modus.

This variant combines the advantages of a depowerloop leash for unhooked tricks with a safety function for hooked riding.

Assembly:

Create a loop with the end of the FLS or FDS (depending on the system set up. For this purpose you must put the line through the spliced loop at its end. (Don`t put the line through the ring! This might release without intention.)

Now put the shakle of your unhooked leash completely through the shaped loop and tighten the loop.

Then hook, like at a pure depower-loop leash, the shakle into the white loop on the right side of the depower loop (Half-Force-Line).

Attention:
If the depowerloop unvoluntarily slides off the harness hook (which might rarely happen depending on the shape of the harness hook) you are connected by means of your leash with the depowerloop and the kite continues to pull (likewise depowerloop leash). Of course you can, as is customary at a depowerloop leash, immediately reach the bar grabbing along the leash.

Though if this happens in an emergency, such as being overpowered near the shore or in another dangerous situation, you can only detach from the kite by activating the quick release at your safety leash.

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, with the right technique buckets of water can be drained out in no time at all 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 and PSYCHO III and SPEED II 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 longer in the front and shorter in the back. 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 kite 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.

Please consider that you don`t lose the ELC.

In order to connect a line put one ELC in one noose of the two ends to be connected. With the other loop create a loose larks-head knot. Now insert the ELC through the loop of the second noose (not through the larks-head knot itself) and tighten the larks-head knot.

It is important that the lines all run in the groove of the ELC. Compare the result with the picture and check if the connection is tight.

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 FLYSURFER kite 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

Your FLYSURFER Kite uses special nose valves, which effectively prevent 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.
All three leader lines 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 folded in wingtip facing upwind for a launch from the edge of the wind window (recommended method). 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 your kite. 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 FLYSURFER 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, which also has the function of an emergency detach system to entirely detach from the kite,is free of sand and attached correctly. See picture. Alternatively the leash might release and other people might get injured if the kite flys away.

6. LAUNCHING THE KITE

Your FLYSURFER kite 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 your FLYSURFER kite 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 and complicate the launch by pumping water into 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, turn down the end of the wing and weigh down the upwind wingtip, indicated by the symbol of a hand, with an appropriate dull object, for example sand.

Now position yourself about 15-30° upwind of the kite. Hook into the sand-free SAFETY-LEASH and the depower-loop 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 “overflys“ 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 EDGE OF THE WIND WINDOW WITHOUT ASSISTANCE AND WITHOUT SECURING WITH WEIGHT.

In this case the trimmer should be pulled in a little. Position yourself as with the Powerzone-start. Hook in and pull in both steeringleaderlines to stop the kite from taking off prematurely. Once the kite is inflated sufficiently walk to one side until the kite is almost at the edge of the wind window and starts to fold in the upwind wingtip. Now release both backlines, depower immediatly and the kite will take off. Keep the kite low above the ground and steer it towards the edge of the wind window.

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 latest depower kites, 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, unlike Tubekites, 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 MDPS.
The recent FLYSURFER kites are 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 steering-leader-lines, than by 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.

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.

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

By pulling in the leader-lines the kites can be launched backwards.
Pull in both leader-lines towards you until the kite lifts up at least a few meters.

Then let go of one leader-line. Now the kite turns on the spot. If the kite shows upwards you have to let go of the second leaderline. Catch the bar to be able to steer the kite again.

Especially in low winds, it is important to pull the backlines very far. To do do this, grad the upperst knot in the back-leaderlines as shown in the picture above.

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.

With low wind it is useful if the trimmer is completely open. Thus the back lines are more tightened. The relaunch by pulling only one leaderline, as it is possible with FLYSURFER beginner kites, is only possible with SPEED2 in Size 15.0 and 19.0.

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 your kite. The best thing to do to is to additionally fully open the trimmer.

10.4. 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 wrap up the kite as you would do on land, but be careful not to get caught in the lines. First, activate the SAFETY-SYSTEM 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 power to get you back.
If you only have to swim a short distance back to the shore, it is enough to pull the kite with the activated Pull-Stop-System against the wind.
Actively pulling back the kite to face the wind is the biggest mistake you could make.
When doing this, you're pumping water into the kite and turning it into a drift anchor.

10.5. 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 prevented 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.

While landing the kite in whirled areas (e.g. alee of trees) at the edge of the wind window it might happen that the wind turns fast and thus the kite gets off the wind window. Consequently there is no tension in the lines lines anymore.

If you want to land the kite at the edge of the wind window, it is best to fly the kite a bit more towards the power zone. For this purpose you must fly the kite quite fast downwards and also power it more. By powering the bar you can position a foil kite very well at the edge of the wind window. If necessary you can also grab into the back lines.

Don`t position the kite too long at the edge of the wind window.

11.2. POWER ZONE WITH FDS

The Kite 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.

11.3. POWERZONE WITH FLS

By releasing your FLS systems the kite can be landed in the power zone. We recommend this variant only in exceptionel cases, e.g. if there is no helper available to land the kite or if landing the kite by means of a backstall is impossible because the wind is too strong. When using the FLS system the lines might get tangled.

Before landing your kite make sure that there are no obstacles/persons on the landing place. Check in advance if the FLS line really runs loose and if the leash is correctly attached to the FLS.

To activate the FLS system simply unhook from the depowerloop (or activate in an emergency the quick release at the depowerloop).

Once you have landed the kite, a helper might secure the kite or you secure the kite leash on a solid object (e.g. pillar or held tight by a helper). This should happen immediately to prevent the kite from rising again into the air.
In case there is no object available to attach the safety leash of the kite you can attach the safety leash to a board fixed in the sand/snow.Then quickly run towards the kite outside of the lines and secure the kite safely.

11.4. BACKSTALL LANDING WITH LOW WIND

With low winds the kite can be landed simply from the zenith by grabbing both back leader lines ca 30 – 50 cm above the bar at the knots there and pulling them downward. Thus the kite turns into backstall and flies backwards. The tip folds and the kite lands on the trailing edge.

This technique should not be applied with strong winds as the kite faces the wind with the majority of its surface even after landing and thus creates a remaining pull which should not be underrated.

11.5. SECURING THE KITE ON THE GROUND

The best way to secure a kite after landing on the ground is to lay it lengthwise into the wind while holding on to one wingtip and to weigh the upwind wingtip with snow, sand or a board, etc. There the kite can be relaunched, see launching the kite from the edge of the wind window, chapter 6.2.

With very strong winds it might be reasonable to weigh down the kite on several spots. Thus you will prevent the kite from fluttering in the wind and the lines from getting tangled up.

Particularly with snow- or landkiting it is possible, like with all foil kites, to park the kite in the wind window in a stalled position, e.g. to make a short break.

After having landed the kite as described in 11.4. you can conduct both back-leader lines under the harness hook.

Thus the back lines are more tightened than by hauling the bar. The stalled position guarantees that the kite won`t be able to accelerate and take off.

The shortening of the front lines by means of the trimmer will have impact on the length of the back lines. Shortened back lines (i.e. open trimmer) create more backstall with less remaining pull. Though, if the back lines are tightened too much, the kite is more likely to relaunch or flutter. We recommend to keep the trimmer completely open if you park the kite on the ground.

Attention: if in this position the kite nevertheless produces a dangerous amount of pull, e.g. strongly increasing wind, you are not able to release yourself from the kite, due to the back-leader lines being hooked in your harness-hook! Use this method only with low wind!

Provided there is a stable pilar, tree or ground anchor available you can secure the kite similarly: hook the depowerloop in the ground anchor as well as both drawn through back leader lines.

It might suffice to hook in both back leader lines in the demonstrated drawn through position on the fixed point.

To secure the kite similarly on a tree you can also use your harness and wrap it around the tree.

In case of turbulances and the wind changing direction the kite might flutter in the wind. As the majority of the kite`s surface is still in the wind there might often be a considerable remaining pull. The kite might also launch and create dangerous pull, e.g. if somebody gets tangled in the front lines.

Therefore the kite should be laid down flat on the ground and be weighed down on one end, if the rider takes a longer break or in strong winds. We recommend to deposit the bar safely next to the kite with the flying lines wrapped up. Thus you will avoid that the bar gets into the bridle lines even if the kite gets moved by the wind.

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 wrap the back leader lines crossed (figure-of-8) around the bar. Wrap the flying lines also crosswise by means of the winder till you reach 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)

Your kite 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 bridle 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. Your FLYSURFER kite 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.

LENGHT	EFFECTS	PERFECT FOR
Shortened	Due to the decreased size of the wind window the kite is more agile and feels more direct in its response to steering inputs. Therefore the kite develops less power when being worked and it flies closer to the waterssurface. Riding underpowered, especially in conditions where there is less wind near the waters surface is significantly more difficult.	More control when overpowered, especially in gusts, confined spots, kiting in waves, improved safety to due more direct kite control, reduced risk of being lofted
Standard length 21m	most optimal compromise	All-round performance
Additional line-lengthening	Due to the increased size of the wind window the kite is less agile and feels less direct in its steering responses. Therefore the kite develops more power when being worked in underpowered conditions. If the wind increases with height the low end ability of the kite can be further improved upon. However the response to gusts is slow and delayed..	Underpowered cruising in certain conditions ,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. While doing this, the FDB trimm should not be changed again.

All Leaderlines have the same lenght.

After a certain number of flying hours the depower flying lines of each kite get longer than the steering flying lines as a result of the higher load. In extreme examples this means that your kite might fly backward too easily when you haul the bar(sufficient wind provided).
In this case you can restore the optimal trim as follows:

- Compare the length of the depower flying lines with the steering flying lines (tighten them next to each other with a helper)and note down the difference.

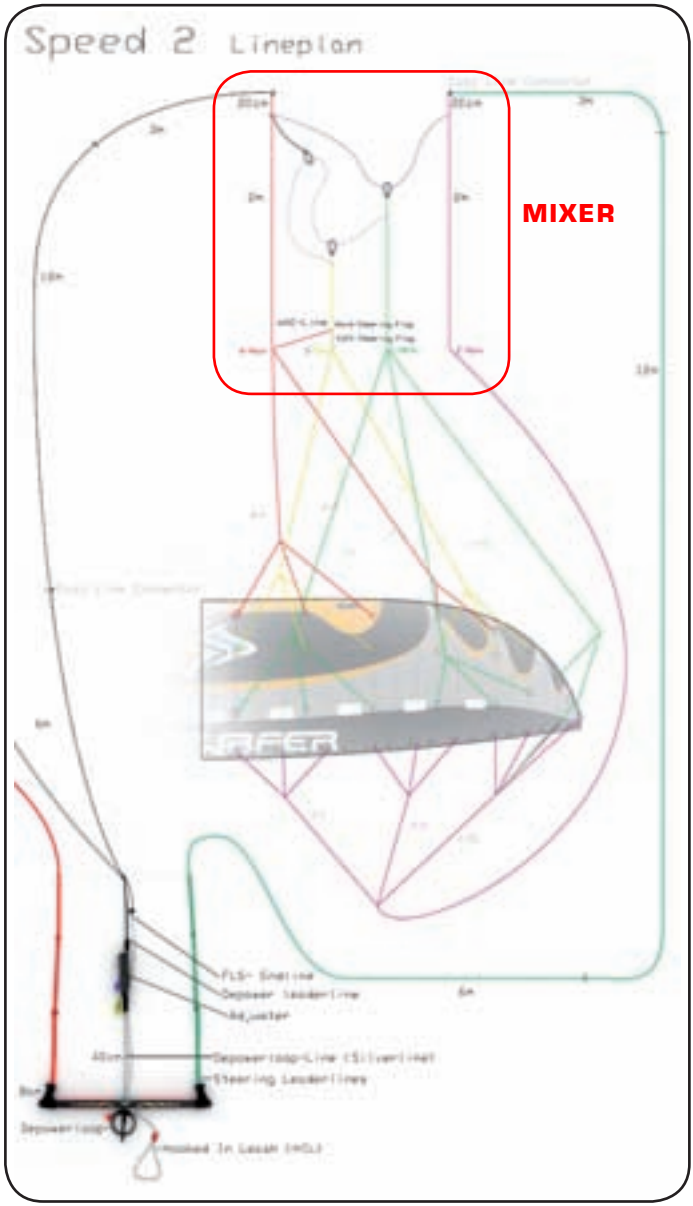
- For adjustments open the black depower leader line at the bowline hitch on top of the trimmer and adjust the length by the difference noted.

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 - 7,8
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

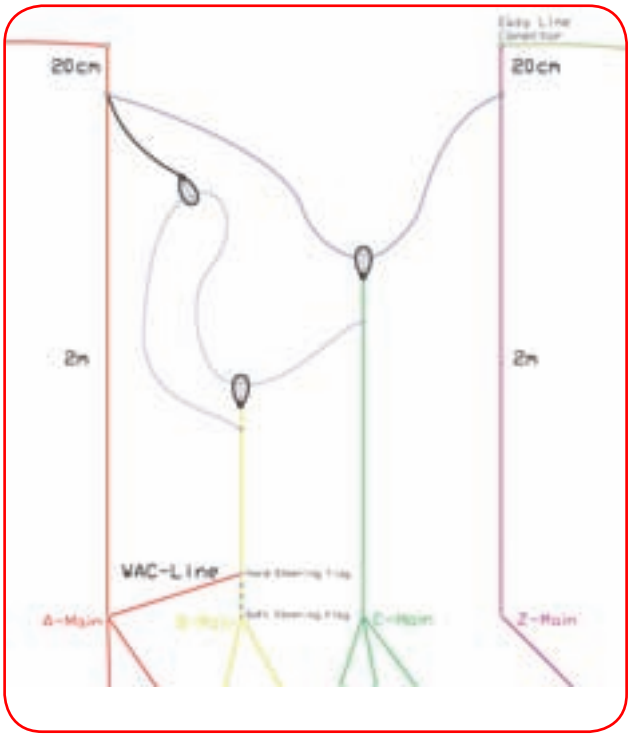
14. LINE SETUP AND LENGTHS

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.



15. MAINTENANCE AND REPAIR

15.1. MIXER-TEST



MIXER

The flying-lines (MAX DE-/POWER LINE-SYSTEM MDPL)
The flying – lines 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 not pre-stretched Dyneema sheeting, 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.

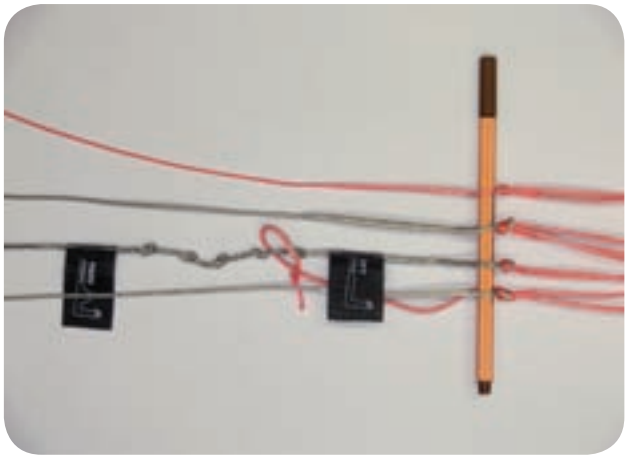
MIXERTEST implementation:

To be able to control the trim of the kite you can easily apply the mixer test no matter where you are.
The following description refers only to one side of the kite. The mixer test must be implemented seperately and symmetrically for the left and the right hand side.

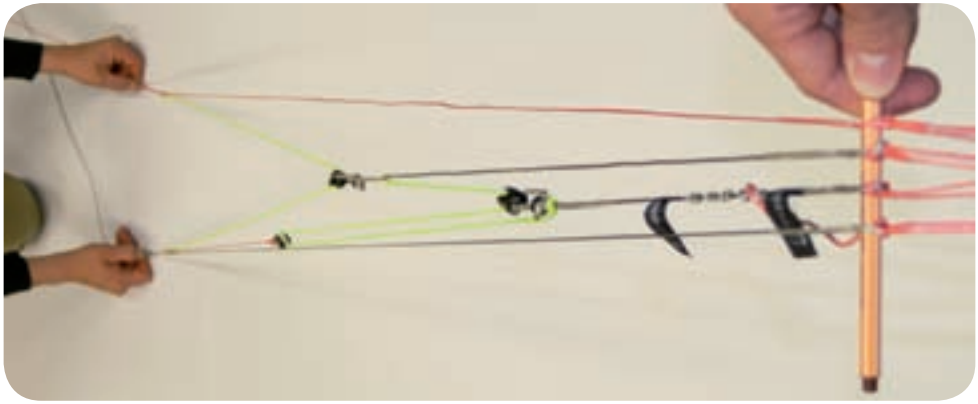
The upper end of the mixer ends with these 4 lines: the A, B, C and Z (or Brake) line.
The lines A and Z (Z= red or green steering line) are not adjustable. The length of the B and C levels (lines which respectively end at the pulleys)
can be adjusted at the plastic balls next to the pulleys.

Steps:
1. Open the WAC-line at the adjustment knot for hard/soft-steering, these could otherwise block the mixer test.

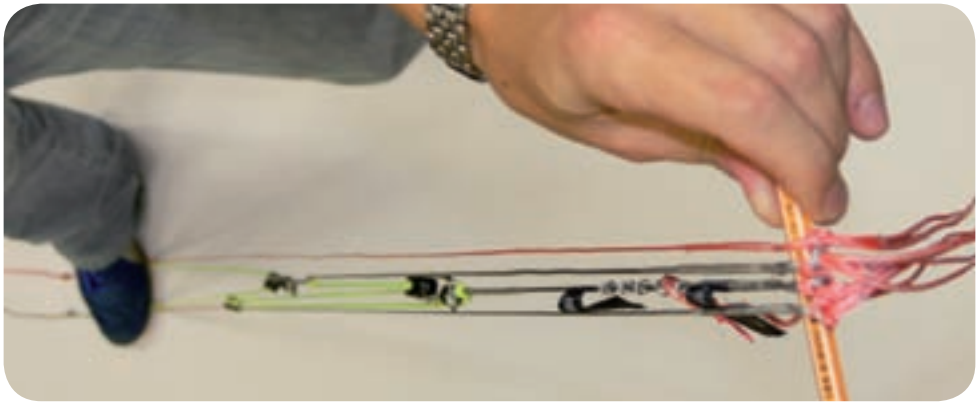
2. Put a pin or something similar through the loops at the upper end of the A, B, C and Z-line. The correct position is slightly above the little hard/soft steering flags, see pic.



3. Now tighten the complete mixer between the pin and the front- and back lines.
A helper should pull the front- and back-flying line e.g. by grabing the ELCs there.



If you are alone, you can also put one foot on the front- and back-flyingline to tighten the mixer.
E.g. near the ELCs.



Note: the ELCs don't have to be exactly at the same level. It's only important,
to tighten the mixer with the front- and back-flyingline.

4. All lines which end up at the pin, should have the same tension,i.e. they should have the same length. If this is not the case, adjust the B and C line so that all lines are equally long.

It's useful to mark the position of plastic ball before with a pin, so you can always restore the beginning position, and see exactly, how much you moved the ball. The adjustment of the B and C line works as follows:

Move the position of the plastic ball by loosening the line which is guided through the ball. Depending on whether the lines should become shorter or larger, move the ball into the wanted direction and tighten it again.

5. Then fix the WAC-line again at the wanted hard/soft-steering position.

6. Now implement the mixer test also on the second side and make sure both mixers are symmetric.

Thanks to the mixer tests the flying characteristics of the kite can be constantly maintained in the long term.

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 FL 200 lines.
You can order these lines online at www.FLYSURFER.de or with your authorized dealer.

If the B-Main is too loong your kite becomes instable and might frontstall.
If the B-Main is too short your kite might backstall.

The correct length of the C-Main line is essential for the performance of the kite.

If your kite is likely to collapse despite of equally long lines established in the mixer test, just move the black plastic ball at the C-Main for 3 cm up. That will make C-Main for 1.5 cm and B-main for 0.5 cm shorter. This difference to the B-Main and C-Main can be seen, if a pin is put through the A-Main and Z-Main only (the two lines, that are not adjustable in length).

15.2. 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:

15.3. UV-LIGHT

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.)

15.4. 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.

15.5. 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.

15.6. 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.

15.7. CLEANING

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

15.8. 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.ing the kite
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.

15.9. 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.

15.10. 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.

15.11. KITE PULLS INTO ONE DIRECTION

The kite pulls into one direction if you pull the bar down. If you let go off the bar it flies straight.

The kite`s behaviour indicates that the back lines don`t have the same length and can happen particularly, if a trick has often been done on one side only. Consequently the lines were stretched asymmetrically.

Check first if the leader lines at the bar are symmetrically and correct them by moving the end knots, provided there are asymmetries.

Compare, if possible with a helper, the length of both 21 m steering flying lines with each other by stretching them under a load of ca 5 kg.

If there are any differences in length then try to compensate them by stretching the shortened steering line. For this purpose stress the line with a load of max. 100 kg.

In order to compensate further differences in length you can loop the steering flying lines once on to the steering leader lines.

At the connection point between the steering leader line and the steering flying line there is a loop. Open this loop on the long steering flying line, loop it once more around the steering leader line and tighten it again.
See pict.

b) Kite pulls into one direction if you let go off the bar

This behaviour can be caused by various asymmetric exposures (e.g. kiteloops always into the same direction).

1. Implement the mixer-check on both sides (see chapter 15.1.) and make sure that the kite is correctly adjusted both on the left and right hand side.

2. Compare the length of the depower flying lines: for this purpose unwind the lines and fix the depowerloop on a stable object. Grab the depower flying lines at the upper end and tighten them. If there is a difference in length, the shorter depower flying line can be re-stretched. (Put e.g. a screw driver through the loop at the upper end of the line to be able to grab the end easily or wrap the line various times around the hook of your harness. Now stress the line repeatedly with as much power as possible, max. 150 kg.)

If it doesn`t suffice, you might loop the enlarged depower flying line also once on the bar at the ring of the depower leader line.

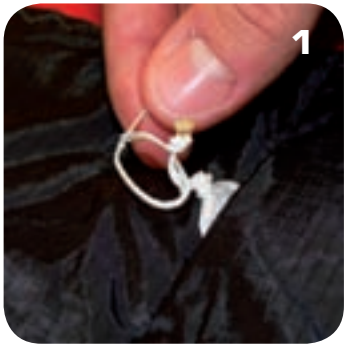
3. If the kite still pulls to one side after having implemented point 1 and 2, compare the individual bridle lines of the right and left side with each other. For this purpose stretch and compare, if possible with a helper, the same line from the right and left hand side respectively with each other.

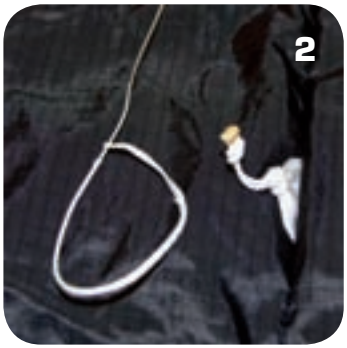
Adjustments of little deviations can be made by stretching the lines under a load of max. 50 kg. Otherwise the most upper bridle lines (top lines) which are attached at the LCL`s can be used to shorten the bridle lines.

4. If the kite didn`t show any asymmetries after having realized point 1,2 and 3 you can simply trim the kite by slightly shortening the B-lines on one side with a loop(see line setup, the B-lines are the second line alignment counted from the leading edge).

If your kite pulls to the right side, shorten some B-lines on the left side preferably starting from the wingtip to the centre.

Open the loop of the top-line, loop the strap once more around the LCL and tighten the connection again. Thus the bridle lines are shorten by ca. 0.7 cm.





16. FLYSURFER FREE-REPAIR WARRANTY

Terms and conditions:
FLYSURFER will take over the repair at no charge for all customers, who bought their FLYSURFER kites in Germany, England, Finland, Austria, Sweden and in Switzerland and who use their kites for private activites only.
Commercial use, such as schooling or rental, as well as deliberate and negligent damages (e.g. crashing into obstacles, etc.) are excluded from this warranty.
In order to be eligible for the FREE-Repair warranty, the customer must register in the internet under FREE-REPAIR.com within 2 weeks after purchase with a correctly filled out warranty card. Wilful deception particularly in terms of the date of purchase or dealer name will result in the loss of the FREE-REPAIR warrranty for all 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 fulfillment interests and subsequent damages is 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:
(forwarding expenses are to be paid by the sender)

skywalk GmbH & Co. KG
Bahnhofstraße 110
83224 Grassau
Germany

skywalk GmbH & Co. KG · Bahnhofstraße 110 · 83224 GRASSAU · GERMANY
phone +49 8641 6948-30 · fax +49 8641 6948-11
www.flysurfer.com · info@flysurfer.com