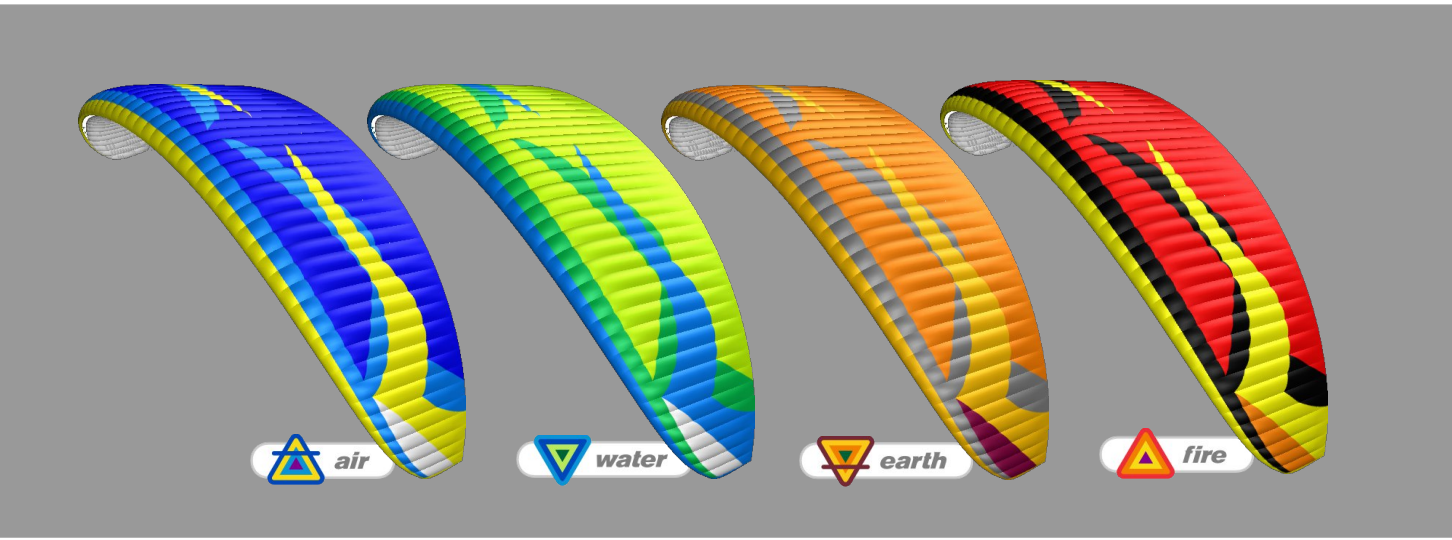
V. 12.03.2024

Optic 2



DUDEK paragliders

user manual

INDEX page:

Congratulations!

We are pleased to welcome you among the growing number of DUDEK PARAGLIDERS pilots. You've become a proud owner of a sport paraglider, designed according to recent trends.

Intensive development, application of the modern production methods and thorough testing resulted in a friendly behaving paraglider, offering the pilot a lot of fun combined with great performance.

We wish you many enjoyable and safe flying hours.

Please read this manual carefully and note following details:

- The purpose of this manual is to offer guidelines to the pilot using the paraglider. By no means it is intended to be used as a training manual for this or any other paraglider.
- You may only fly a paraglider when qualified to do so or when undergoing training at an accredited school.
- Pilots are personally responsible for their own safety and their paraglider's airworthiness.
- The use of this paraglider is solely at the user's own risk! Neither the manufacturer nor dealer do acceptany liabilities involved.
- This paraglider on delivery meets all the requirements of the EN 926-1 and 926-2 regulations or has an airworthiness certificate issued by the manufacturer. Any alterations to the paraglider will render its certification invalid.
- Other documents concerning this paraglider can be found on attached pendrive or on our website: **www.dudek.eu**.

! **NOTE:** Dudek Paragliders warns that due to the constant process of development the actual paraglider may differ slightly from the one described in the manual.
However, those differences must not affect the basic design parameters: technical data, flight characteristics or strength.
In case of any doubts contact us please.

For whom the Optic2?

Optic2 is a three-row cross-country/recreational paraglider of 5,50 aspect ratio and 51 cells. It is recommended for pilots who want to fly a lot and grow, capitalizing on its outstanding performance. The paraglider offers EN/LTF B class safety, confirmed by according certificates.

DESIGN

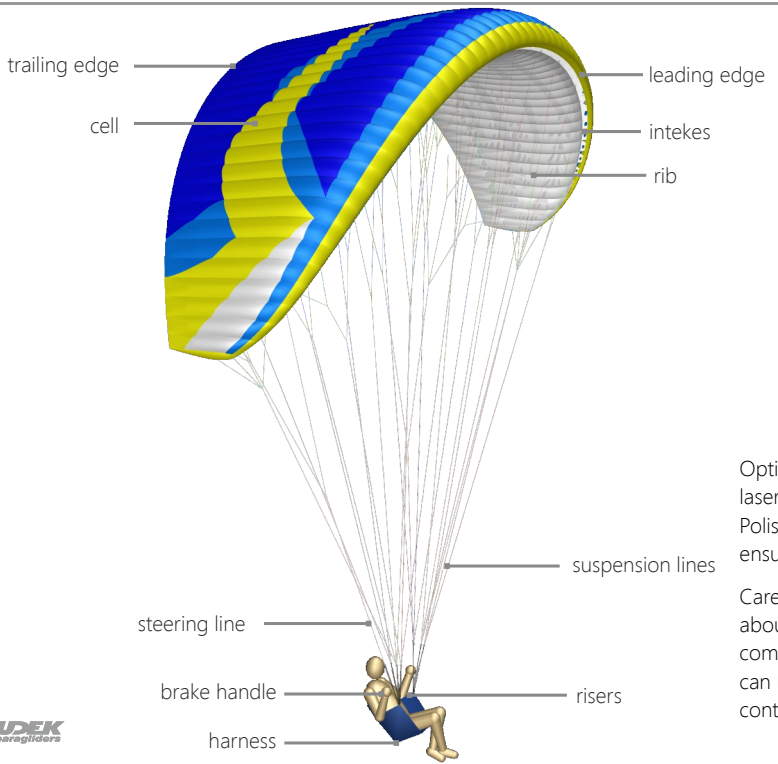
The canopy structure is reinforced with rigid rods (Flexi Edge Technology) as well as mini-ribs on the trailing edge, truly representing, smoothing and stabilizing the airfoil at all speeds. Another solution improving both the aerodynamics and stability is the Shark Nose. Stabilo has been modified too. All these technologies come from the racing canopies and combined with 3-row rigging give the paraglider large passive safety margin and exceptional aerodynamic performance.

The airfoil used in Optic2 has some reflex traits. The wing is tuck-resistant, comes up easily and is perfectly steerable. Worth a special praise is its great lateral and longitudinal stability.

As in other our paragliders, the risers of the Optic constitute a complete, comfortable and carefully thought out control panel, where each instrument is placed exactly where it should be and works as it should. Modern risers of 20 mm width feature ball-bearing SmartPulleys, made on special order along with our indigenous design. Versatile and comfortable ACT brakes with neodymium magnets can be adjusted to individual preferences.

As a result, you got the wing that will easily float in a slightest lift, and covering long distances in typical turbulence of a thermally active day won't be a problem. Speed-system operation is safe and comfortable even in rough air. Optic2 has lots of speed, great deal of lift, and In generally simply wants to fly – so don't be selfish and take it with you for a long XC ;)

We are positively sure that the Optic2 is one of the best canopies in its class.



B3D Ballooning 3D

DOA Dudek Optimized Airfoil

3L Three-Liner

CSG Canopy Shape Guard

MR Mini-Ribs

LR Laser Technology

ELR Easy Launch Riser

FET FlexiEdge Technology

SS Speed System

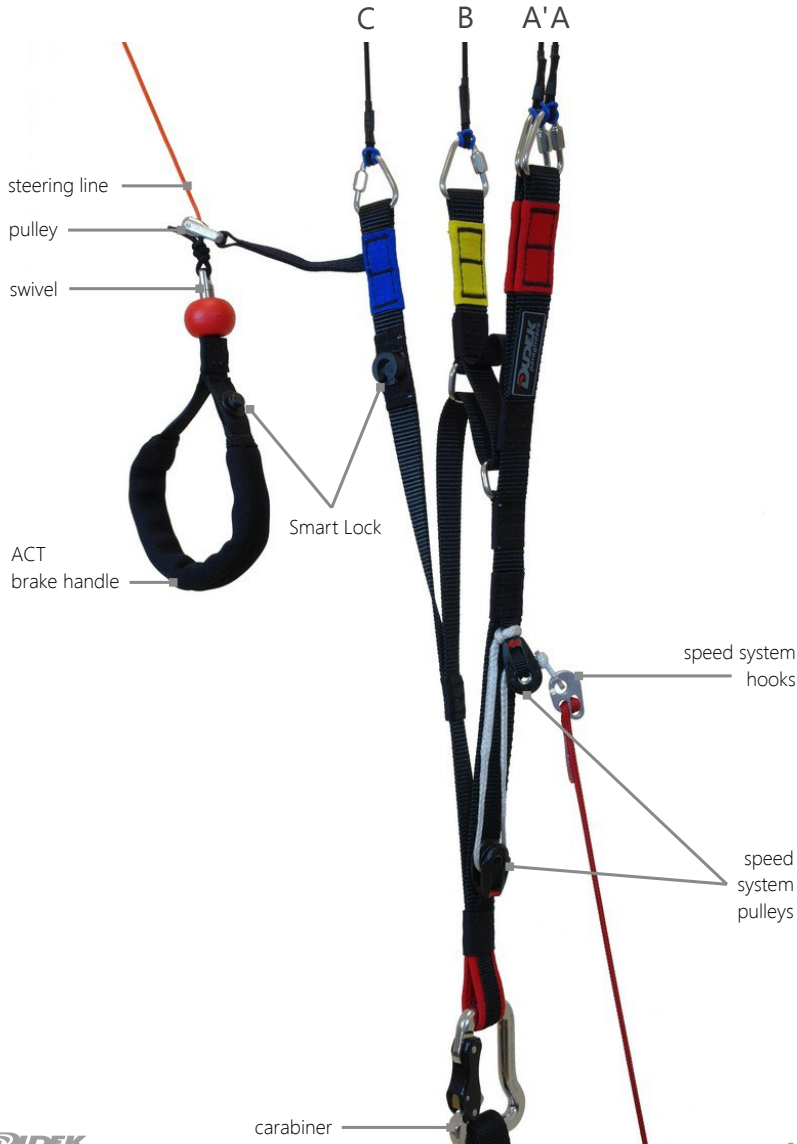
SN Shark-nose

SL Smart Lock

ACS Auto Cleaning Slots

Optic2 is produced in new technology, utilizing capabilities of precise laser cutter. All stages of the production process take place as our Polish plant under close supervision of the designer himself, thus ensuring highest European quality.

Careful selection of modern fabrics and design solutions brings about great strength and durability of the canopy. All materials used come from marked production batches, and each production step can be verified down to identification of individual worker and controller.


C
B
A'A
steering line
pulley
swivel
Smart Lock
ACT
brake handle
speed system
hooks
speed
system
pulleys
carabiner

For the Optic2 we have chosen three-way risers equipped with:

- ELR (Easy Launch Riser) - system. It is a specially marked A riser (with red cover)

ELR
Easy Launch Riser

- speed-system affecting A and B risers when ngaged, featuring ball-beared pulleys and a dedicated cord.

SS
Speed System

Brake handles are attached to the steering lines at an optimal point, guaranteeing safe and effective action.This point is marked on the line with a black dot and this setting should not be altered. Attaching the handles above factory markings will cause constant braking of the paraglider, possibly cause of an accident. Overly loose setting of the brake lines is not advised too, since the much lower load on the trailing edge lines can sometimes be dangerous too.

Our newest brake handle used in Optic2 besides its attractive, light design features:

- ACT (Adjustable Comfort Toggle) system, with adjustable loop,

ACT
Adjustable Comfort Toggles

- a swivel – preventing possible twisting of the steering line,

For quick and easy recognition in emergency, some of the risers are distinguished with coloured covers as follows:
A - red (used for launching)
A' – red (used for big ears),
B - yellow (used for B-stall),
D - blue (needed to keep the glider down in strong wind – aborted launch).

ACT
Adjustable Comfort Toggles

In order to accommodate diverse preferences of many pilots we've designed the Adjustable Comfort Toggle, allowing steepless adjustment of the toggle size.

SL
Smart Lock

A magnetic/mechanical system of locking the steering toggles to the risers, the Smart Lock merges functionality of the Easy Keeper (magnets) with naps (mechanical lock).

Magnetic pin of the toggle easily fits into the riser's socket. You can place it there by nearing the toggle to the riser from any direction. On the other hand, unlocking is possible in one direction only - by pulling the toggle down. In this way accidental release or getting a line between the magnets (as possible in Easy Keeper) are minimized.

Operation

It's pilot responsibility to choose a canopy matching his skills.

Dudek Paragliders cannot take responsibility for a wrong choice, but we are always ready to advise you – just contact us.

Weight range

Each size of the canopy is certified for specific weight range, meaning total take-off weight including the pilot, harness, equipment and the canopy itself.

We advise flying the paraglider in the middle of weight range. However, if you most often fly in weak winds you can consider flying in lower part of the weight range, and in higher part when in strong winds.

! **CAUTION:** Check your real take-off weight! Some pilots calculate their take-off weight by just summing up catalogue numbers, e.g.: harness 5 kg + canopy 6 kg + pilot 89 kg = ca. 100 kg. In reality your actual take-off weight can be umpteen kilograms more. Most often we forget the clothing, electronics, backpacks, sometimes even such basic things like fuel or rescue chute weight are omitted!

What harness?

You can use any certified harness which has its hangpoints at 40-45 centimeters from the seatplate.The width between carabiners should be somewhere between 37 cm and 45 cm.

! **CAUTION:** Please note that any modification of seat/hang point distance changes the position of the brakes as related to pilot's body. You must remember that in each harness your steering range will be different.

SPEED SYSTEM

Optic2 is as standard equipped with a speed system. It consists of a cord sewn into the A riser, leading through two pulleys and finished with a loop and a hook. His is where you attach the speedbar cord.

The speed system affects A (including A') and B risers. Pressing the speedbar shortens first the A risers, before first use then gradually the A' i B. C riser retains its original length.

! **CAUTION:** Ill-adjusted speed system renders the certification invalid!

How to adjust it?

Most of modern harnesses are equipped with speed system pulleys and sometimes even its own integrated speedbar. The speed bar cord must be firmly attached to it.

The other end of the cord must be ran upward through the harness pulleys and attached to the hooks.With well adjusted speed system you should see the pulleys on the risers touch each other at max speedbar, meaning you are using the full range of speed system.

Caution: Make sure that both cords on the speed bar are equal, as even slight difference can result in constant, inadvertent turning of the paraglider.

Before take-off attach paraglider risers to the harness with the main carabiners. Then connect the hooks of the speed system cords with hooks at the A-risers.

Caution: Before launching make sure that the speed system is not tangled and runs freely.

Other systems

This paraglider has no other systems which can be adjusted, exchanged or removed.

Pre-flight check

Having chosen a place to launch accordingly to the terrain as well as wind speed and direction clear it of any obstacles that could damage your canopy or tangle in the lines.

After laying out your paraglider in a horseshoe directed against the wind following checks must be made:

- canopy, lines and risers condition. Do not launch if the slightest damage is noticed,
- the paraglider should be arranged so that the centre section A-lines will strain earlier that the outer ones. This ensures easy and symmetrical launch,
- the leading edge should stay taut and even,
- all lines and risers should be separated. Make sure they are not tangled, and checked against catching anything. It is equally important to check the brake lines. They must be firmly attached to the brake handles and run freely through the pulleys to the trailing edge,
- make sure the risers are not twisted,
- it is very important to check that no lines are looped around the canopy. The so-called "line-over" may have disastrous consequences during take off.
- always put on and fasten your helmet before clipping in to the harness,
- make sure that all quick links (maillons) of the risers are tight,
- Check main carabiners. They must be properly mounted, closed and locked.

Classic (forward) launch

Should be used with little or no wind. Facing the wind place the risers over your shoulders (A riser must lay on top).

Clip it into carabiners and lock them. Grip the brake handles and A-risers, holding them at the stitching, just under the quick-links. To make things easier, A-risers have been markedwith a red cover. Spread out your slightly bent hands, keeping them down and back.

All other risers should be placed near your elbow joints.

Apply some tension to check if the A risers stay on top and the lines are not tangled. Take a step back, bow down a little and run forward. After the initial inflation smoothly move the hands with the risers up and over your head until the wing will be directly above you. Let the A risers loose and check the wing.

Pump out possible faults and keep an eye on position of the paraglider. Side drift is corrected best by moving yourself always under center of the canopy. In order to keep wing in the air the suspension lines must stay taut all the time, so in light winds you will have to run forward. With stronger winds you can control the wing while standing still.

When leaving the ground apply some brakes, then release it after gaining some distance from the ground. Keep your hands relaxed.

Reverse launch

To be used when wind speed exceeds 3 m/s.

After clipping the risers into carabiners as for the forward launch, turn back to face the wing, moving one riser group over your head. As a consequence, you will have the risers crossed.

Unclip the brake handles from rear risers and grip it outside of the risers without crossing neither arms nor lines. In this way you steer the left side with you left hand and vice versa. Now take corresponding A risers on both sides (still keeping brake handles in your hands).

Make sure that the wing inflates symmetrically and the lines are not tangled. Building up tension with a few steps back and simultaneously lifting the A risers (do not pull them towards you) will make the paraglider rise.

When it arrives over your head, stabilize it with the brakes, check again if all lines are clear and the cells inflated.

When turning into wind, remember to turn the right way

(hint: always do it the same direction) and to keep the lines strained at all times. The turn itself should be quick and smooth. While turning you have to release the brake handles and grip them again facing forward, so that again the left one is in the left hand etc. Last check of the wing & free space to launch and off you go, running into wind with eventual light braking when taking off.

Remember!
When deflating the canopy in strong winds (e. g. aborting a launch), use the C risers, not the brakes. Using the brakes in strong wind can lift the pilot up and drag him/her back.

! **Caution:** When clipping in the crossed risers, you can find proper connection of the speed system particularly hard. Be careful not to confuse the risers!

Turns

Optic2 is an agile wing, with smooth reactions to all pilot's actions. Handling is actually easy and forces grow proportionally to position of the brakes. Adding some weight shift will make the paraglider turn really quick and tight.

The combined technique (weight shifting and brake input) is by far the most efficient method of turning. Turn radius is then determined by the amount of inside brake used and weight shift. Additional application a little outside brake after initiating the turn with maximum weight shift increases turn efficiency and the outboard wing's resistance to collapse (in turbulence, the edge of a thermal etc).

In case of necessary turning in confined area at slow speed (e.g. slope soaring), it is recommended to steer the decelerated canopy by loosening the brake at the outside of the turn while applying just a little more brake on the inside.

! **Caution:** when entering a turbulent area you should brake a little to put up the tension. It will allow you to react instantly in case of a problem. Too hard or too quick pulling of one brake can cause the wing to enter a spin.

Thermalling and soaring

When flying minimum sink is reached with slight brake pressure applied (5 to 10 cm, depending on pilot's weight). In turbulent conditions the canopy should be flown with a small amount of brake applied. This improves overall stability by increasing the angle of attack of the canopy. The canopy should neither rock back nor surge forwards, but always stay above the pilot. In order to achieve it, the pilot should accelerate the canopy by letting off the brakes when entering a thermal (according to its strength) and brake it on exiting. This is part of basic active flying that can spare you many potential collapses.

When soaring the slope, minimum height of 50 m above the ground is recommended for safety reasons. It is important to comply with air traffic rules, especially when many pilots share airspace close to the hill.

The avoidance manoeuvres often happen to be impossible in such conditions.

Flying with speed-system engaged

When flying into head wind, through sink, or during long transitions between thermals it is advisable (for the sake of best glide angle) to increase speed, as long as conditions are not too turbulent.

In order to accelerate your flight you have to put your feet on the speedbar and push it forward. If you happen to feel tension drop when pushing the speedbar, it can be a sign of imminent frontal collapse. In this case release the bar immediately.

! **Caution:** Watch out for such things - fast reaction can spare you most of the frontstalls, always possible when using the speedsystem.

Remember:

- Speed system operation diminishes your paraglider's angle of attack, so that its airspeed is increased, but simultaneously the canopy becomes less stable. The airflow becomes more dynamic, too. Therefore you should avoid using speedsystem in turbulent conditions, close to the ground or near other airspace users!
- Do not use speed system during extreme manoeuvres! If the canopy does collapse when accelerated, release the speed bar immediately and correct the situation as usual.
- When speed system is engaged, do not use the brakes as it can make your paraglider more susceptible to frontal collapses. In such situations you should control your direction with C risers (blue cover).

! **Caution:** Accordingly to increase in speed the angle of attack diminishes, so the canopy is more susceptible to front collapses than in normal flight.
The faster is your flight, the more dynamic are possible collapses and stalls.

Landing

Just make sure that last turn into the wind is done with sufficient altitude. At about 1 meter over ground flare out by gently braking both sides. The glider may climb again for a while gaining some height, if too much brake is used.

Caution: Strong wind landings hardly require braking, if at all! Use C-risers to deflate the canopy after landing. Using the brakes will probably result in pilot being lifted again and dragged backwards.

The final glide of the landing approach should be straight and smooth. Steep or alternating turns can result in a dangerous pendulum effect near the ground.

Neutral risers position

Slowest speed,
minimum sink.
Launch configuration.

Neutral risers' length:
A - 510
A' - 510
B - 510
C - 510

Full speed

Increased speed,
increased sink.

Speed system sizes 22, 24, 26, 28:
A - 390
A' - 390
B - 430
C - 510

Speed system size 30:
A - 365
A' - 365
B - 415
C - 510

* lengths of the risers incl. quicklinks, length tolerance +/- 5mm

WINCHING

Our paraglider has been successfully tested for foot launching by winch.

First phase of the winch take-off is analogous to classic launch.

After rising the canopy you will be taken off the ground, as the winch line gets loaded. Avoid large heading corrections in first stage of flight up to altitude of 50 meters.

During this stage do not sit deep in the harness in order to be ready for emergency landing in case of e.g. winch line break.

Make sure that your brakes are fully released, so that angle of attack does not increase above safe level.

During all winch it is recommended to control the direction by weightshifting only. Steering lines should be used only for considerable heading corrections, but even then do not pull them too much in order to avoid danger of stalling your wing.

Adjust your heading regularly when winched, so no large corrections are necessary. Remember there are several conditions to be met when winching:

- pilot should be properly trained for winching,
- the winch with all gear should be in good condition and specialized for paraglider winching,
- the winch operator must be properly trained in winching and servicing the gear,
- The wing must not be winched with forces exceeding 90 daN, and under any circumstances must not be towed by any vehicle not equipped properly or controlled by unskilled operator.

MOTOPARAGLIDING

During tests a lot of successful fligths were made, both using the winch and the paramotor. In flat areas this are the only ways to get some altitude after launch.

There are no contraindications for using the Optic2 in motoparagliding.

TANDEM FLYING

Optic2 is not certified for tandem flying.

Caution: During launch, especially winched or with a paramotor, always remember to bring the wing directly over your head. The aerofoil and its angle of attack were arranged so as to give maximum lift coefficient with relatively high safety level. Therefore if the canopy is not pulled enough, it can stay behind the pilot, rendering launch difficult and/or dangerous.

Quick descent methods

Big Ears

In order to get the big ears you have to pull down the outer lines of the A' risers (distinguished by red sheath) by some 20-50 cm. While inducing big ears you should never let the brakes out of your hands. After tucking the tips in, the wing will continue to fly straight with increased sink rate (up to 5 m/s). You can steer the wing pretty efficiently by weight-shifting.

After releasing lines, the paraglider will usually open up on its own or you can assist it with a long stroke of the brakes, until the tips unfold. For the sake of safety (the possibility of a parachutal stall)it is reasonable to engage speed system after pulling big ears in order to lessen the angle of attack of the wing centre.

B-stall

To enter a B-stall, simultaneously pull down both B-risers (yellow cover) by ca. 10-15 cm. The canopy will collapse across the entire span along its B-row, the airflow over top surface will break and projected canopy surface will be decreased. Forward movement will be almost completely stopped.

Further pulling B-risers is not advised, as testes have shown it to increase wing instability. If the canopy forms a horseshoe, gently pull both brakes to recover.

To exit a B-stall, the risers should be released in a smooth and decisive manner.

On quick and symmetrical releasing B-lines the airflow will be reinstated and the wing will surge forward, returning to normal flight.The surge forward is minimal due to stability of thre reflex profile, so braking is not necessary.

Spiral dive

Optic2 is an agile paraglider, so entering spiral dive happens very quickly and can be surprising for the less experienced pilots.

A spiral is characterised by reaching the highest sink rates possible.

Significant G-forces, however, make it difficult to sustain a spiral dive for a long time, as it can place high loads on both pilot and glider, to degree of losing consciousness by the pilot. Never do this manoeuvre in turbulence or at too high bank angles.

Control the dive and do not exceed 16 m/s sink. If the dive is not stopping after releasing the brake, assist the glider with the outer one.

Caution: Never do spirals or wingovers with big ears pulled. That's another example of concentrating whole load on reduced wing area, which - combined with high G manoeuvres - shifts the peak loads unnecesarily close to their maximum values.

Wing over

You make a wingover by performing a series of consecutive, alternating turns with increasing bank angle. Too aggressive banking with unsufficient control can result with a massive collapse.

Aerobatics

Optic2 was not designed to do any aerobatics.

Caution: All rapid descent techniques should be practiced in smooth air and only with sufficient altitude margin! Full stalls and spins are to be avoided as they are not

recommended techniques of clearing dangerous situations.

Irrespective of paraglider type they may lead to dangerous consequences!

BY FAR THE BEST TECHNIQUE IS SAFE AND CORRECT FLYING, SO THAT YOU WILL NEVER NEED TO DESCEND RAPIDLY!

Extreme manoeuvres

! EXTREME FLYING MANOEUVRES SHOULD ONLY BE CARRIED OUT DURING SAFETY TRAINING COURSES (INSTABILITY TRAINING) UNDER PROPER GUIDANCE!

One sided collapse

Can happen in strong turbulence.

With collapses up to 50% pilot has a couple of seconds to react before the wing will enter rotation. Standard counter-steering is enough to keep the paraglider on course.

Under normal conditions the canopy will reinflate instantly and spontaneously..

Frontal collapse

Can happen in strong turbulence. Active piloting will usually prevent its occurrence.

Optic2 is a modern paraglider with significantly stiffened leading edge. Tests have shown that most often canopy reinflates spontaneously, however in specific turbulent conditions it is possible that airflow will keep the leading edge collapsed. That's why an instant pilot's reaction is advised – a measured braking at the right moment will greatly speed up the recovery.

Full stall and negative spin

Practically do not occur, may happen only as a result of serious neglect or intentional action of the pilot. You have to be careful when flying at very low speeds until fully familiar with brake operation.

The canopy recovers spontaneously in initial phase of stall, otherwise use standard procedures.

Deep stall

Under normal conditions does not occur. If you want to prevent it at all, simply stick to a couple of rules:

- after B-stall, release the risers quickly and evenly. Don't be afraid – the canopy does not jump forward excessively.

- after big ears execution, engage the speed system. This will increase both the sink rate and safety margin, as big ears constitute an effective aerodynamic brake with significant loss of speed.

Nevertheless, if such a parachutal stall happens e.g due to strong turbulence, simply apply some pressure on speed bar and/or push the A risers forward.

Line over and cravatte

It is a modern wing which, in order to decrease drag has fewer suspension lines with greater distances between them, as well as stiff leading edge.

That's why it's always possible that after a tuck one of the stabilisers may tangle in the lines. Usually a couple of pulls with a brake settles the matter. If it's not enough, try to untangle it with big ears or a stronger pull on the risers.

In case of any doubts you should seriously consider throwing the rescue chute.

Emergency steering

In case of any malfunction rendering normal steering impossible, you can safely steer and land the paraglider using the C-risers (blue marking) or stabilo lines.

Cleaning and storage

The Optic2 design incorporates newest technologies, including stiffening rods in the leading edge. That's why the canopy should be folded carefully, accordingly to its design, so that good conditions for transport and storage are observed.

Basic rules to be followed when folding the canopy:

- Fold it accordion-wise rib to rib (cell by cell). Do not fold it by halves, placing the stabilizers at the centerline.
- When a compact package is created on the longest chord do not roll it, but fold three to four times (depending on the chord length) from trailing edge towards the leading one.
- The leading edge remains on top of folded canopy.
- Never pack you paraglider too tightly.
- Optionally pack the wing into a dedicated WingShell.

If you have completely prepared your gear but have to wait for launch, a good idea is to use a quickpack, to protect your wing against moisture and UV rays. Never pack or store the glider when wet, as it significantly shortens life of the fabric. Remember that wing gets wet even when laying on a green grass in full sun, as the grass transpires.

! **Caution: Locking a wet paraglider in a car exposed to sun is absolutely unacceptable! Hot car interior acts like an oven and as tests have shown that color bleeding/transfer can happen even at 50 Celsius grade. The warranty does not cover such damages!**

While drying, never expose your paraglider to direct sunlight operation. Store the paraglider in a dry place, away from chemicals and UV exposure. Ideal storage temperature for the paragliders is 5 to 25 Celsius.

Cleaning

Clean the paraglider with water and a soft sponge. Do not use any chemicals or alcohol, as these can permanently damage the fabric.

Deterioration - a few tips

The paraglider is made mainly of Nylon - a fabric which, like any other synthetic material, deteriorates through excessive exposure to UV rays that come with the sunlight.

Hence it is recommended to reduce UV exposure to a minimum by

keeping the paraglider packed away when not in use. Even when packed in a bag, it should not remain in the sun for long.

Suspension lines in this paraglider consist of Technora inner core and polyester sheath. Submitting them to excessive bending and loading in flight should be avoided, as it can cause irreversible damage.

Please note that with frequent kiting on a field or a small hill your paraglider will deteriorate more quickly due to its repeated rising, falling and being dragged around.

Uncontrolled strong wind takeoffs or landings can result in the leading edge of the canopy hitting the ground hard, which may seriously damage the ribs, sewing and surface cloth (including coating damage).

Keep the paraglider clean, since getting dust in the lines and fabric will reduce their durability.

Be careful to keep snow, sand or stones from entering the cell openings: their weight can slow or even stall the glider, while sharp edges can damage the cloth.

Prevent lines from catching anything, as they can overstretch or tear. Never step on the lines.

Knots can chafe suspension and/or brake lines.

Check the length of your lines after tree or water landing, as they can stretch or shrink. The lines can be measured at the manufacturer or an authorised workshop.

After landing in water you should check the wing fabric as well, since waves can cause the fabric to distort in some areas.

When taking the wing out of the water, always do this by trailing edge.After a sea landing, rinse the paraglider with fresh water.

Since salt crystals can weaken the suspension lines even after rinsing in fresh water,you should replace the lines with new ones immediately after contact with salt water.

Frequent flying near oceans and seas accelerates deterioration of the paraglider, as salt present in the sea breeze can make the lines stiffen and even break.

Repairs

Repairs should only be carried out by the manufacturer, authorised distributor or an authorised workshop.

It is acceptable to fix minor cloth damage with self-adhesive patches included in the package.

Inspections

Full Inspection is recommended **every 24 months or every 150 hours** whatever comes first, if not advised otherwise by the inspecting person due to paraglider's condition.

In case of paragliders used **commercially** (e.g. in schools or tandem flying) a Full Inspection is recommended **every 12 months after first 24 months from purchase date or every 100 hours airtime** (whatever comes first).

A paraglider can be officially inspected only by the manufacturer or a dealer (authorised to do so).

We are aware that purchase of a new paraglider is a big expense for every pilot. That's why we guarantee quality of our products, as well as optionally we are offering a security system that will allow you to insure your paraglider against possible damage and repair costs with an AeroCasco insurance.

Warranty:
Dudek Paragliders guarantees free of charge repairs in case of damages caused by the material or production flaws:

For the free-flying paragliders warranty covers 36 months (3 years) or 300 flight hours, whatever comes first. If the free-flying paraglider is used for powered flights, every hour flown is counted double (not concerning PPG paragliders).
For the paramotor canopies (PPG) warranty covers 24 months (2 years) or 200 flight hours (whatever comes first).
For the mountain wings (MPG), speedflying, schools or professional users warranty covers 18 months 1,5 year) or 150 flight hours (whatever comes first).

Warranty does not cover any of the following:

- canopy colour fading as well as bleeding caused by improper storage/transport
- damage caused by chemicals or salt water
- damage caused by improper use
- damage caused in emergency situations
- damage resulting from accidents (airborne or otherwise)

Warranty is only valid if:

- flight hours can be identified basing on properly kept logbook of the owner (and his possible predecessors) with marked PPG hours.
- the paraglider is used in accordance with the operating manual
- the owner did not make any repairs by him/herself (excl. minor repairs with self-adhesive patches)
- the owner did not make any modifications
- the paraglider can be unmistakably identified by data sheet/sticker
- the paraglider has been properly inspected at all times.

Note: In case of damages caused by the material or production flaws please contact the dealer that sold you the gear. The dealer will determine further actions.

JIf you have bought the paraglider second-hand, ask previous owner for a copy of his logbook (covering entire entire use of ther paraglider from the day of original purchase).

AeroCasco

12AC
12 Months Auto Casco

Standard warranty does not cover repair costs of damages caused by the user or a third party. Since costs of such repairs can be considerable, Dudek Paragliding offers an AeroCasco insurance. It offers a one time repair of any mechanical damage, no matter how big and who caused them.

The only expenses you will be facing are shipping costs and the share-of-cost amount. AeroCasco can be purchased for a brand new paragliders only (at the purchase). The AeroCasco costs 50 €.

Note: AeroCasco is not available for all paragliders (check before purchase). It can be purchased only for privately used paragliders.

AeroCasco covers only damages occuring while taking-off, flying or landing. Obviously, all faults in the material and manufacturing flaws are covered by normal warranty.

When handing the paraglider for the repair you have to present a card confirming its AeroCasco status. After the repair you will have to cover only the share-of-cost value of 50 euro. AeroCasco is valid for one repair only during covered time.

There is a possibility of extending AeroCasco for one further year.

To do this you have to send your paraglider for inspection to the manufacturer not later than a year after the date of purchase. The AeroCasco extension fee is 75 EUR (including inspection). Remember to include the AeroCasco confirmation when you send the paraglider for inspection.

AeroCasco does not cover any of the following: theft, canopy discoloration, damages caused by incorrect storage damage ot transport, damages caused by chemicals, salt water or force majeure.

Environmental care

Paragliding is an outdoor sport.
We believe that our clients share our environmental awareness. Exercising paragliding you can easily contribute to environment preservation by following some simple rules. Make sure you are not harming nature in places where we can fly. Keep to marked paths, do not make excessive noise, do not leave any garbage and respect fragile balance of the nature.

Recycling of used gear

A paraglider is made out of synthetic materials, which need to be properly disposed of when worn out.
If you are not able to dispose of the paraglider properly, DUDEK Paragliders will do that for you.Just send your paraglider to the address given at the end of the manual, accompanied by a short note.

The Dudek paraglider you bought should include following items:

- Transport bag (with your canopy inside)
- The paraglider itself (canopy, lines and risers)
- Compression strap to keep the canopy together
- Wind indicator (windsock or a strap)
- Pocket with paper work and repair wallet including:
  - Piece of self-adhesive fabric (10 cm x 37.5 cm) for small repairs. Note that even small tears located in the vicinity of stitches are to be repaired by an authorised service only.
  - Looped and stitched suspension line (the longest of all lines in the paraglider) to be used as a temporary replacement. Do not cut it if you have to temporarily replace a shorter one, just tie it at the length needed.
  - Paraglider passport with entered date of purchase and valid technical inspection (please check the serial number with the sticker on wing tip).
  - USB drive with this manual.
- Small gifts

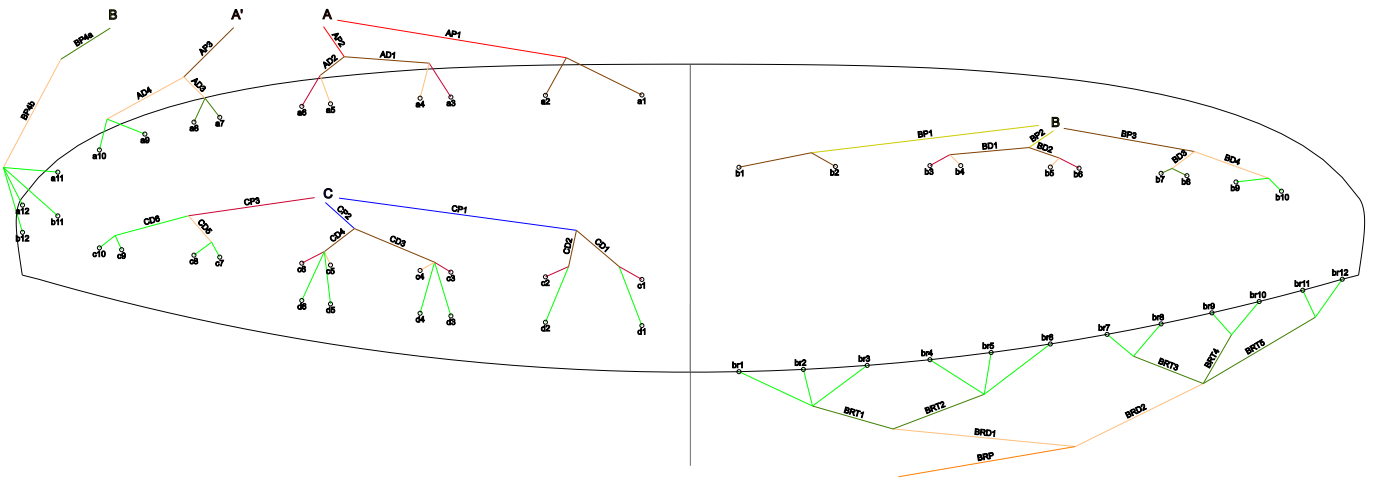
Optic 2	22	24	26	28	30
Certification	EN B	EN B	EN B	EN B	EN B
	LTF B	LTF B	LTF B	LTF B	LTF B
Number of cells	51	51	51	51	51
Surface area (flat) [m ²]	22,00	24,00	26,00	28,20	30,40
Surface area (projected) [m ²]	18,81	20,52	22,23	24,12	26,00
Span (flat) [m]	11,00	11,49	11,96	12,45	12,93
Span (projected) [m]	8,79	9,18	9,56	9,95	10,33
Aspect Ratio (flat)	5,50				
Aspect Ratio (projected)	4,10				
Sink rate [m/s]	min = 1,0 + - 0,1m/s				
Speed [km/h]	trim = 37; max = 51 + - 2km/h				
Max. chord [mm]	2488,00	2599,00	2705,00	2817,00	2925,00
Min. chord [mm]	629,00	657,00	683,00	712,00	739,00
Distance pilot to wing [m]	6,82	7,13	7,42	7,72	8,02
Total line lenght [m]	229,40	240,00	250,17	260,91	271,24
Total take-off weight [kg]	60-75	70-90	85-105	100-120	115-140
Maximum symmetric control travel at maximum weight in flight [cm]	>55	>60	>65	>65	>65
Distance betwen risers [cm]	40,00	44,00	46,00	46,00	46,00
Weight [kg]	4,74	5,05	5,37	5,71	6,01

Lines	Edelrid A-8000U: 050 & 070 & 090 & 130 & 190; 7343-280; Liros TSL 90 & 190
Fabric	Porcher 38 g/m2 & Dominico tex 34 g/m2
	Porcher Hard 40 g/m2
	SR Scrim, SR Laminate 180 g/m
Risers	PASAMON - Bydgoszcz, Polska

The rigging scheme itself is published on the next page, while tables of line lengths you will find in attachments to this manual.

Lengths are measured with a specialised, computer-operated device. All the lines before measurement are stretched with a steady 5 kg load. Thanks to abovementioned device and proper procedures, final tolerance of line lengths does not exceed +/- 10mm.

Note: Distances given below are to be understood as distances between connection points. When cutting a line for repair, **20 cm extra must be added**, as at each end a 10 cm stitch is required to fix the loop. The only exception is the main steering line (BRP), which is looped only at the upper end, with at least 150 mm margin for fastening brake handle (this means for this line extra 25 cm than in the table is needed).


B
A'
A
BP4a
BP4b
AP3
AP2
AP1
AD4
AD3
AD2
AD1
a10
a9
a8
a7
a6
a5
a4
a3
a2
a1
a11
a12
b11
b12
CD6
CP3
CD5
CP2
CP1
CD4
CD3
CD2
CD1
c10
c9
c8
c7
c6
c5
c4
c3
c2
c1
d6
d5
d4
d3
d2
d1
B
BP1
BP2
BP3
BD1
BD2
BD3
BD4
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b8
b9
b10
br1
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br3
br4
br5
br6
br7
br8
br9
br10
br11
br12
BRT1
BRT2
BRT3
BRT4
BRT5
BRD1
BRD2
BRP

If you respect the rules of safe flying and proper glider care, you will enjoy many years of pleasant airtime on your wing.
Still, you must be aware of possible dangers and face them wisely. You must accept the fact that all air sports are potentially dangerous and your actual safety depends solely on you. We insist that you fly safely,
and this concerns both the weather choicesafety margin during all manoeuvres.

Caution: FLYING THE PARAGLIDER IS ALWAYS YOUR OWN RESPONSIBILITY!

SEE YOU IN THE AIR!

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