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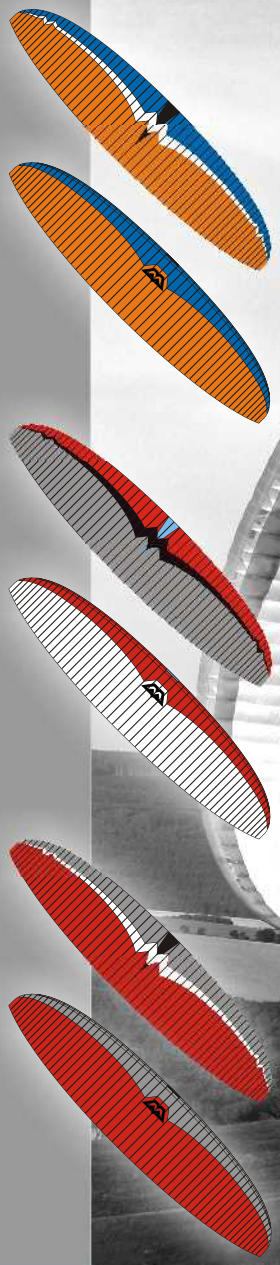
MAC PARA



VELVET

USER MANUAL

Contents

Introduction

We congratulate you on your purchase of a MAC PARA-poweredglider.

Extensive development work and numerous tests make the VELVET a very high performance glider with maximum possible safety.

The VELVET is designed for paramotoring, and will enable pilots to get maximum enjoyment.The Velvet is also suitable for paragliding.

Please read this manual carefully before you start, this way you will get the most out of your glider, and enjoy many nice flights.

Paragliding and paramotoring are sports, which demands, besides the optimum equipment, a high degree of attentiveness, good judgement, and theoretical knowledge. Paragliding and paramotoring can be a dangerous sports, which may lead to injury and death. Avoid flying in strong turbulence, strong winds and especially in thunderstorms and Foehn conditions. These could lead to uncontrollable flight conditions and result in a crash. If you have the slightest doubt about weather, wind or terrain, don't take off.

Before delivery, as well as during production, each glider goes through a strict visual inspection, and is test-flown by your dealer. Stamps on the placard, together with a completed test-flight certificate, confirm this. Check that the glider has been test-flown before your first take-off. If it has not, consult your dealer.

If, after carefully reading this handbook, you still have questions, telephone your dealer; or us we will be glad to help.

MAC PARA wish you many pleasant flights with your

VELVET

Warning and safety precautions

The buyer of this product accepts full responsibility for all risks associated with paragliding or paramotoring inclusive of injury and death. Any inadequate use or misuse increases the risks considerably. The buyer should be aware of the need to complete a paragliding and paramotoring training course and should be in possession of a valid flying licence as required by the relevant country.
Any changes made to this paraglider invalidate the certificate of airworthiness.

The VELVET must not be used:
- outside the certified weight range
- during rain or snow-fall
- in high or gusty winds
- in cloud and fog
- by pilots without sufficient knowledge or experience

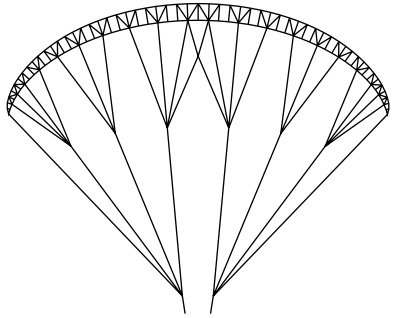
The VELVET is certified for solo flight.

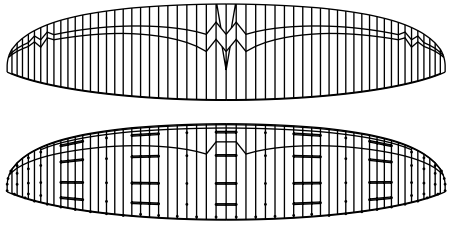
Operating limits

The VELVET has been developed for foot-launch, and for solo flights.
The VELVET has been tested by Testlaboratory (Air Turquise) to EN-D category.
The Velvet has been load and shock-tested and passed with a load corresponding to 8 G of the maximum weight in flight 154 kg. Its flying test have shown that the glider remains stable and controllable over a wide range of normal and abnormal flight conditions. Nevertheless, turbulence and gusting winds can lead to a partial or complete collapse of the canopy. Therefore never fly in such conditions.

Construction

The VELVET is a third rib diagonal-construction paraglider. Every third main rib is attached to the lines and other ribs are attached at A, B, C and D-points thanks to the diagonal ribs. These ribs lead to top surface of canopy. Line geometry and a system of load-bearing tapes between top lines cascades give the canopy stability.





Trimspeed and trimmers

The glider is delivered with a standard set-up and its speed can reach 39 - 43 km/h depending on the weight of the pilot and position of the trimmers. The brake-lines should always be adjusted so that the first brake-lines just come under tension when the brake handles have been pulled 5 - 10 cm.

The test results relate to this brake-line adjustment. In extreme situations other settings may lead to the glider reacting differently. To be able at all times to react quickly enough to possible problems; you should not let go of the brake handles during the flight (it may be possible to hold both handles in one hand). Alter the line length to bring the handles to a suitable height when using your harness.

NOTE!! *If in doubt about the brake-line adjustment, it is preferable to leave them too long, as any necessary shortening can easily be achieved by wrapping them round your hand.*

Safety equipment

An optimal outfit should be a matter of course for every paramotoring pilot. Always wear stout footwear, a helmet, and gloves. Clothing should be warm and allow sufficient freedom of movement. A rescue-system can be life-saving in case of an irremediable disturbance of the canopy, collapse in the air or material failure, and is therefore imperative.

Speed system

To fly faster than trim speed the VELVET is equipped with a foot operated original speed system. When in use, it lowers the angle of attack. VELVET is designed with a 5-riser system to further improve safety.

VELVET has a wide speed range. The highly effective speed system of the VELVET allows a 12 - 14 km/h gain in speed.

VELVET 21, 23, 26, 29

Riser	A	A1	B	C	D
Trimmer down (closed)	50,5 cm	50,5 cm	50,5 cm	50,5 cm	50,5 cm
Trimmer up (open)	50,5 cm	50,5 cm	50,5 cm	52,0 cm	54,0 cm
Accelerated+trimmer up	34,0 cm	34,0 cm	38,5 cm	46,0 cm	54,0 cm

New glider check and before every flight check

In additional to all the usual pre-flight checks, please pay particular attention to the items in the following checklist:

Checklist

1. Inspection of canopy for tears or damage, especially the seams which join the ribs to the upper and lower surfaces, but also the area of the attachment tapes and brake-line connections.
2. Inspection of the attachment tapes for damage to the stitches. It is also important to check the attachment tapes and brake-lines for tangles. The line lengths must be checked after 50 hours flying time and whenever the flight behaviour of the glider changes.
3. Inspection of the risers and maillons for faultless condition. Special inspection of the maillons for traces of corrosion under the lines.
4. Inspection of the knotting of the steering handle to the brake-lines. The brake-lines must run freely.
5. Inspection of the harness. The harness must show no signs of wear or other damage. You must also check the harness after a hard landing.
6. Check whether the rescue-system is correctly installed and secured.
7. Inspection of the karabiner. Inspection of the attachment and securing of the karabiner.

Take-off

Find a suitable take-off spot, from which you can abort the take-off at any point. After checking the glider, following the checklist, lay it out with the cell-openings upwards so that the canopy forms the shape of a horseshoe. In a strong wind don't spread the canopy too far, so that there is less resistance when pulling up.

Forward launch

This is possible in almost all wind conditions except strong headwinds. It is essential to stand in line with the canopy, especially when the glider has longer lines. Before take-off, place yourself centrally at the gliders axis. Let the B C and D-risers fall into the crook of your arm and pull the canopy dynamically up by A-risers. The stronger the headwind the less run-up you need to pull the canopy up. As soon as the glider is above you, stop pulling on the A-risers. Now do a visual check upwards, to see if the canopy is completely open. Otherwise, abort the take-off. Now accelerate continuously until you lift off. In a weak headwind it is easier to take-off if after reaching minimum flying speed you pull the brakes slightly. After the take-off, gently release the brakes again.

WARNING!! *Do not use the forward launch in very strong winds. Make sure you don't pull the risers too much towards yourself or downwards as this can result in a frontal collapse, or in an asymmetric take-off.*

Rear launch

To be used in moderate to strong headwinds. Please note that in a strong headwind you may need a helper, as you could easily lose control of the canopy. If the headwind is too

strong, take some of the pressure out of the canopy by taking in one or both of the brake-lines (or the C-risers).

Flight

Always fly with sufficient clearance from the terrain. The VELVET glides best with closed trimmers and open brakes, descends best with lightly applied brakes. In turbulence fly with brakes lightly applied to avoid canopy collapse. If the canopy pendulums forward, this should be corrected by prompt braking. A pendulum movement of the canopy backwards is corrected by loosening the brakes in good time.

Steering

Turns can be initiated using the brakes in two different ways.

Turns with brakes

The pilot pulls the brake on the side to which he wishes to turn. To minimise sinking, the brake on the outside of the curve is lightly applied.

Turns with brakes and weight shifting

The pilot pulls the brake on the side to which he wishes to turn and shift his weight to the same side. Turns can also be flown with the harness alone, by shifting the weight to the inside of the curve. This weight shift has a greater effect, the more loosely the chest-strap is fastened. An optimal steering technique is achieved by a combination of braking and weight shifts. It is pilot's skill to use both of these techniques specially in thermals.

A further possibility for steering is best limited to emergencies (if the brake-lines break, for example). This entails gently pulling the front (watch out for collapse of the canopy) or on D-riser (beware asymmetrical stall). We recommend that you do not use this form of steering in normal flight.

Approach and landing

To avoid stressful situations in the approach to landing, it is important to initiate the process at an adequate altitude. This leaves you enough time to observe and appropriately deal with wind direction and any other aircraft in your vicinity.

The final approach should generally be made into the wind and with fully released brakes, in order to maintain maximum energy in the glider. If the air is turbulent, it is better to land lightly braked to minimise the possibility of the canopy collapsing. In order to land on your feet, rather than lying on your back, you will need to lean forward in the harness not lower than 5 m above the ground. At an adequate height (about 1-2 m above the ground), pull both brakes fully down until the glider is sufficiently slowed.

In a light headwind pulling the brakes only lightly is enough to give a soft landing. In a calm, or even tailwind, you must pull the brakes as abruptly as possible. This dynamically increases the angle of attack and gives you the maximum braking effect.

Flight with speed system

To make faster flight possible, the VELVET is equipped with a special speed system.

To accelerate the paraglider we recommend the following steps:
a) extend the speed bar
b) use the speed bar to control speed

Never activate the speed system in turbulence, at low altitude, or when approaching a landing (the lower angle of attack results in less stability despite the higher speed).

Motorized flight and towed flight

The Velvet was designed for paramotoring but is suitable for free flight and towed flight.

Note!! *However, motorized flying has been made with great success due to its very easy take-off characteristics, stability and good handling, always use certified combinations of engine - harness - glider. If in doubt check with your federation.*

VELVET has no tendencies towards deep stall/parachuting. Therefore we allow tow-launched flights with a similar techniques to that described above. There is sufficient margin to counter-steer the glider in a normal towing situation. Make sure you use proper equipment, experienced personnel and all relevant safety precautions for towing.

WARNING!! *Please always ensure that the brake lines are adjusted to the lengths recommended here. Setting them shorter could lead to a tendency to stall during towed flight. Apart from this, there are no special procedures.*

WARNING!! *The VELVET is not suitable for jumps from aircraft.*

EXTREME AND CRITICAL FLIGHT MANOEUVRES

This section describes flying conditions which can be deliberately induced, or which can develop unintentionally due to turbulence or pilot error. Any pilot who flies through turbulence is sure to be faced with these special flight conditions at some point. So take a good look at these flight manoeuvres and prepare for them by SIV (safety training over water). Mastering these flying conditions significantly improves your active flight safety. Sufficient height, as well as the carrying of a reserve parachute, is imperative.

WARNING!! *All the critical flight conditions described here require thorough knowledge; otherwise carrying them out may be very dangerous. Sufficient height above the ground is imperative. Bear in mind that all disturbances of the canopy can increase the sink rate by 2 - 10 m/sec, depending on the degree of disturbance. Carrying out these manoeuvres wrongly may lead to a crash.*

Collapse of the canopy

Remember this is a high performance paraglider with corresponding reactions to disturbances in the air. Whenever in doubt, let up the brakes and let the glider fly. The glider has a high internal pressure, resistance to tucking and very high degree of passive safety. It is recommended that at this stage you already master an active flying style. The key to active piloting is keeping the glider above your head at all times. We recommend in principle that you hold the brake handle in your hand whenever possible, or fly with your hands through the brake handles, to allow you to react immediately to any possible disturbances.

WARNING!! *If you fly with your hands through the brake handles, you may lose valuable time for activating the rescue system.*

Asymmetrical collapse

This form of collapse occurs most frequently, caused by turbulence.

Initiation

Pull the A1-(outermost A-line) slowly down, until the edge of the canopy folds in. The canopy collapses furthest if you pull A-riser together with A-riser violently down. This causes up to 70 % of the leading edge to close up, and results in the canopy going into a spiral towards the collapsed side. If the harness is too loosely adjusted, in a more extreme collapse you will fall in the direction of the folded-in side, thus unintentionally magnifying the canopy's tendency to turn.

Recovery

Basically the VELVET will re-open by itself from closures of up to 70% by turning of 180°. The time this takes, and the associated loss of height, can however be noticeably reduced by appropriate action by the pilot. Apply opposite brakes on the un-collapsed side, the outside of the curve, to stop the turning movement of the canopy. If you react immediately, 30% brake on the open side should suffice to hold the canopy on a straight course.

WARNING!! *Especially in turbulence, you* ***must*** *first stop the canopy turning, before you pump out the collapsed side. When the canopy is stable again, open it by pulling the brake lines on the closed side. If it is tangled, pumping the brake line should help.*

WARNING!! *Take care to avoid applying too much brake when pumping out the deflation, as this may disrupt the airflow over the canopy and lead to a stall.*

WARNING!! *In the case of a cravat which pumping of the brakes fails to release - apply 50% -70% brake on the open side of the canopy to stop rotation. Then pull the caught line carefully to release it then pump out the affected side. Take care to avoid applying too much brake when pumping out the deflation, as this may disrupt the airflow over the canopy and lead to a stall.*

Symmetrical collapse - "Big-Ears"

Initiation

Whilst maintaining contact with the brakes, grip the A1-risers (outermost A-lines).Work your hands as high as possible on these A1-lines, until you have enough to be able to pull on them without pulling A-risers as well. Pull outer A1-lines down simultaneously. The further you pull the A1-lines, the greater the area of canopy that will collapse (and the greater will be the sink rate).

Recovery

As soon as you release outer A1-lines, the VELVET will open slowly.(The recovery depends on pilot's weight.) You can speed up its opening by light braking. If in extreme cases the lines get tangled, pumping (pulling repeatedly) the brake lines should help.

Frontal deflation

If you feel strong turbulence coming, first step off the speedbar. Sometimes you may have to pull both brakes to avoid a deflation.

Initiation

Hold the brake handles in your hands and grip all A -risers (A+A1) at the level of the maillons. Now pull down far enough to make the whole leading edge fall in (the further you pull, the more area folds in).

Recovery

As soon as you release the A-risers, the VELVET opens by itself and the glider will recover with a corresponding surge. You can speed up this process by light braking. If the A-risers are held too long, the canopy could fold in the middle with the wing tips going forward.

NOTE!! *VELVET usually opens from frontal tuck by itself. If counter braking, be careful - do not brake too much. You could cause glider to begin a full stall with following surge forwards.*

Stalls

Turbulence or rapid braking can lead to a pendulum effect, and thus to changes in the angle of attack. In extreme cases this can make the airflow break away from the upper surface of the canopy even without the brakes being activated.

WARNING!! *All canopies need some time after a stall (in extreme cases a couple of seconds) before the airflow builds up again. You should therefore carry out all manoeuvres involving stalls at an adequate height, as it will take a certain amount of time before the glider flies with its normal sink rate.*

Parachutal stall with steering lines

Initiation

Pull the brakes slowly down until you have no more forward speed. The canopy now loses internal pressure and the lower surface pushes further and further up between the suspension points. The loss of internal pressure is greater the longer the glider is held in this situation. During the parachutal stall the canopy always remains open.
You will probably have to feel for the right brake position at first. If you apply too much brake, the canopy falls away backwards and the glider finds itself on the brink of a full stall. Loosen the brake lines immediately, until the canopy is once more above you. If you hesitate too long, the canopy will strong surge forwards.

Recovery

As soon as you release both brakes, symmetrically, the glider will independently recover from the parachutal stall.

WARNING!! *In a parachutal stall, asymmetrical application of the brakes can lead to a spin. If you must land from a parachutal stall, on no account apply the brakes very close to the ground, as a reduction in area increases the descent rate.*

B-line stall

Initiation

Put your hands through the brake handles and grip the B-risers at the height of the maillons. Now pull the B-risers slowly down, until the canopy folds (parallel to its long axis). The glider will now stabilise itself and sink rapidly, with virtually no forward speed. Keep hold of the B-risers throughout the manoeuvre.

Recovery

Release the riser at first rapidly but then gently. After the B-line stall on no account just let go of the B-risers, as this can cause overloading. As soon as the risers have been released, the VELVET will usually fly normally of its own accord. Otherwise you have three possibilities:

1. Release the trimmers to position "UP" (open).
2. Pull the A-risers, until the canopy regains forward speed. WARNING! Don't pull too far, or a frontal tuck will develop.
3. Pull the brake lines until the canopy wants to fall backwards, and then instantly open both brakes symmetrically. As a result the canopy will shoot forwards, thus regaining forward speed.

So begin with option 1, and only rely on option 3 when you have enough experience with the manoeuvre.

Spin (negative spirals)

If you find yourself in an unintentional spin and you are high enough, you should:
1. Release the brakes immediately. The glider will stop rotating and canopy will surge forwards, if it does not apply sufficient outside brake to stop rotation.
2. Gently apply the brakes to avoid a central collapse of the canopy and the possibility of a cravat (one of the tips becoming entangled in the lines).

NOTE!! *In the case of a cravat which pumping of the brakes fails to release - apply 50% - 70% brake on the open side of the canopy to stop rotation. Then pull the caught line carefully to release it then pump out the affected side.*

WARNING!! *If you are LOW and are in an unintentional spin, or if the canopy is caught in a cravat USE YOUR RESERVE.*

Full stall

This is included only to expand your knowledge of how the canopies performance. Not recommended as a descent technique.

Initiation

Take wraps until the glider is lightly braked (when the hands are right up). Now gently pull both brake lines, until the canopy falls away behind - at this point, dynamically pull the brakes fully down. Press your hands against your body. The glider is now over you, with the wing tips flapping. As a result you sink rapidly with no forward movement.

Recovery

Let go fluently both brakes simultaneously until 90% of leading edge reopen, then release brakes rapidly. The glider ends the full stall on its own slightly surging forward.

WARNING!! *If the brakes are released too early before 90% of leading edge reopen,the surge is markedly stronger.*

WARNING!! *If the brakes are released rapidly and asymmetrically, the glider may turn through almost 90 degrees and suffer an extensive asymmetric collapse.*

Spiral dive

VELVET has very effective spiral dive. This allows rapid descent without stalling.

Initiation

Weight-shift and pull the brake on one side gradually. Let the glider accelerate for two turns and enjoy the growing speed and high G-force.
You can achieve sink rates up to 20 m/s.
Once you have entered the spiral you can control your descent rate and bank angle with weight shift and brakes. We recommend lightly applying the outer brake to avoid asymmetrical collapse on outer side of canopy.

Recovery

Weight-shift to a normal flying position and stop application of both brakes.The way of recovery depend on position of trimmers. In closed position the Velvet has tendency to stay in stable spiral dive. In open position the Velvet stops spiral diving by itself in 360 degrees. If you apply inner brake and decelerate the glider for two or three turns, big pendulum effects can be avoided.

WARNING!! *The Velvet has a tendency to stay in the spiral with trimmers in closed position when the sinkrate exceeds around 15 m/s, depending on weight-shifting, wing loading and G-force. In fact it needs a counter-input to end a turn. With weight-shifting to the normal sitting position VELVET will however come out of the spiral easier. Practise spiralling with caution and lesser sinkrates to get a feel for the gliders behaviour. Care for position of the trimmers!!! A pilot who is dehydrated or not accustomed to spiralling can lose consciousness in a steep spiral dive!*

DESCENT RATES

Fly as far as possible from steep rises, to give yourself space to lose height.

Big Ears
Sink rate approximately 3-5 m/sec

Speed system and Big Ears
Sink rate approximately 4-6 m/sec

Spiral dive
This allows rapid descent without stalling. Sink rate, depending on pilot, 5-20 m/sec

B-line stall
Sink rate approximately 5-8 m/sec
Important! - End the stall with sufficient time for the airflow to re-establish itself.

In principle, always fly in such a way that you do not need to lose height in a hurry.

MAINTENANCE AND REPAIR

The VELVET is produced from the best materials (see Material Description). The glider must be checked as a minimum, every year or after 100 flying hours. Do not step on the lines. Although the lines were tested with „DHV-bending test“ they can be damaged if stepped on whilst on a hard surface, or if they come into contact with sharp objects.
If this happends contact your dealer for replacement lines. The lines must be checked after every 50 hours flying time and whenever the flight behaviour changes. Consult your dealer or MAC ltd. Tears in the canopy must be professionally sewn. Adhesive patches are only adequate for very minor damage. The glider must always be kept cool and dry. If possible it should be stored lightly folded in a well-ventilated place. Protect the glider from dampness and sunlight. Exposure to UV degrades the fabric. A damp or wet canopy must be air-dried in a shady place. Do not expose the glider to temperatures of greater than 50 degrees C, as this can cause softening and shrinking of the attachment tapes. Clean the canopy only with warm water or a dilute soap solution. Do not use solvents.

VELVET is delivered with a stuff-sack, compression Velcro tape, MAC PARA T-shirt, MAC PARA backpack, repair kit and user manual.

Happy landings

Peter Recek - Designer
MAC PARA TECHNOLOGY

MATERIAL DESCRIPTION

FABRIC OF CANOPY

NCV - PORCHER MARINE Wassoilles Rue du Ruisseau B.P. 710
38290 ST. QUENTIN FALLAVIER, FRANCE
Top Surface - SKYTEX S 09017 E77A, E38A - 100% nylon 6.6 , 33 dtex, 40 g/m²
Bottom Surface - SKYTEX S 09017 E38A - 100% nylon 6.6 , 33 dtex, 40 g/m²
Attached Ribs and Diagonals - SKYTEX S 09017 E29A - 100% nylon 6.6 , 33 dtex, 40 g/m²
Ribs - SKYTEX S 09017 E38A - 100% nylon 6.6 , 33 dtex, 40 g/m²
Reinforcement Attached Ribs - W420 Grille Polyester 200 g/m²
Reinforcement Attached Ribs - W382 Polyester 180 g/m²

SUSPENSION LINES

TEIJIN LIMITED
1-1, UCHISAIWAI-CHO2-CHOME,CHIYODA-KU,TOKYO100,JAPAN

Upper lines - Gin Teijin Aramid/Polyester TGL 80 (80 kg), TGL 140 (140 kg)
Brake lines - Gin Teijin Dynema/Polyester 1,1 (100 kg)
Main Lines A1,B1,C1,C2,C3,D2,D3 - Gin Teijin Aramid/Polyester TGL 220 (220 kg)
Stabilo Line - Gin Teijin Aramid/Polyester TGL 140 (140kg)
Main Brake Line - Gin Teijin Dynema/Polyester 2,3 (240 kg)

EDELMAN+RIDDER+CO.
Achener Weg 66, D-88316 ISNY IM ALLGEAU, GERMANY

Main lines A2,A3,B2,B3 - Aramid/Polyester A-6843-240, Breaking Load 340 kg

BRIDLE (ATTACHMENT LINES)

KOLON INDUSTRIAL CO.
45 MU KYO DONG JUNG GU,SEOUL, KOREA

NYLON TAPE 13 mm, Breaking Load 110 kg

RISER

Güth&Wolf GmbH
Herzebrockestr.1-3, 33330 Gütersloh, Germany

Polyestertape 20 mm, Breaking Load 1100 kg

THREAD

AMANN & SÖHNE GmbH & Co.
Industriestrasse 1, 74391 ERLIGHEIM, GERMANY

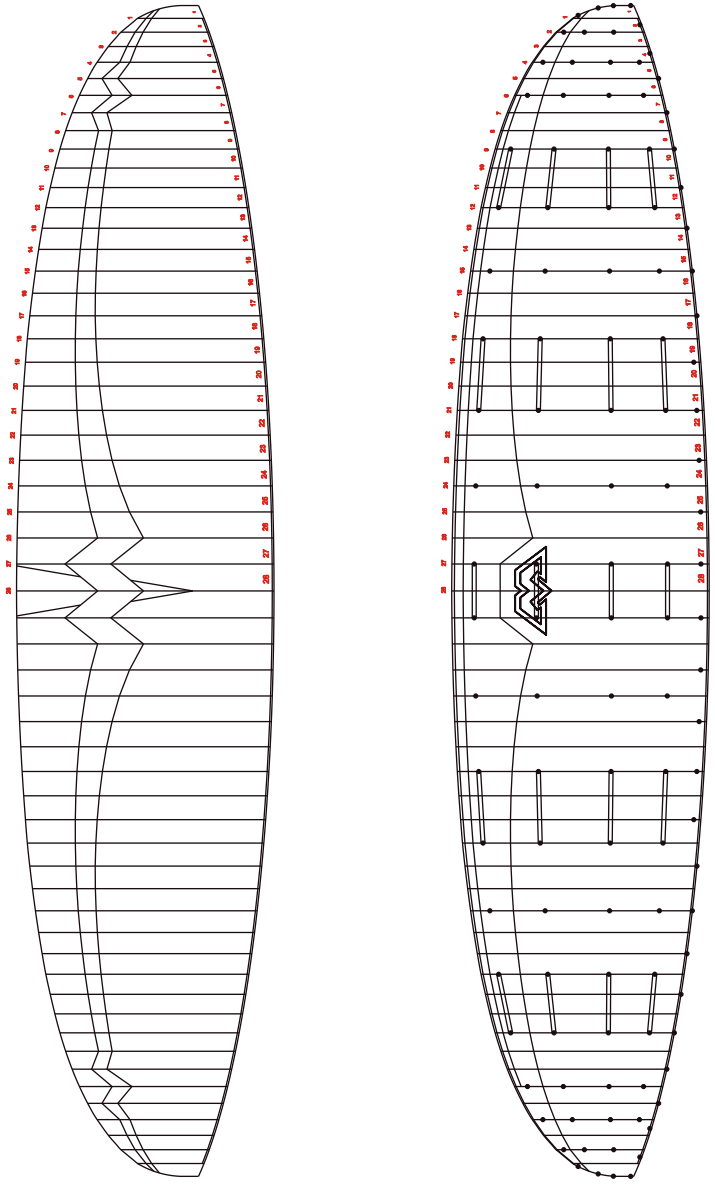
High Tenacity Polyester Yarn 150 D/3, 225D/3, Breaking Load (EN2062) 2,9 kg,3,2 kg

MAILLONS

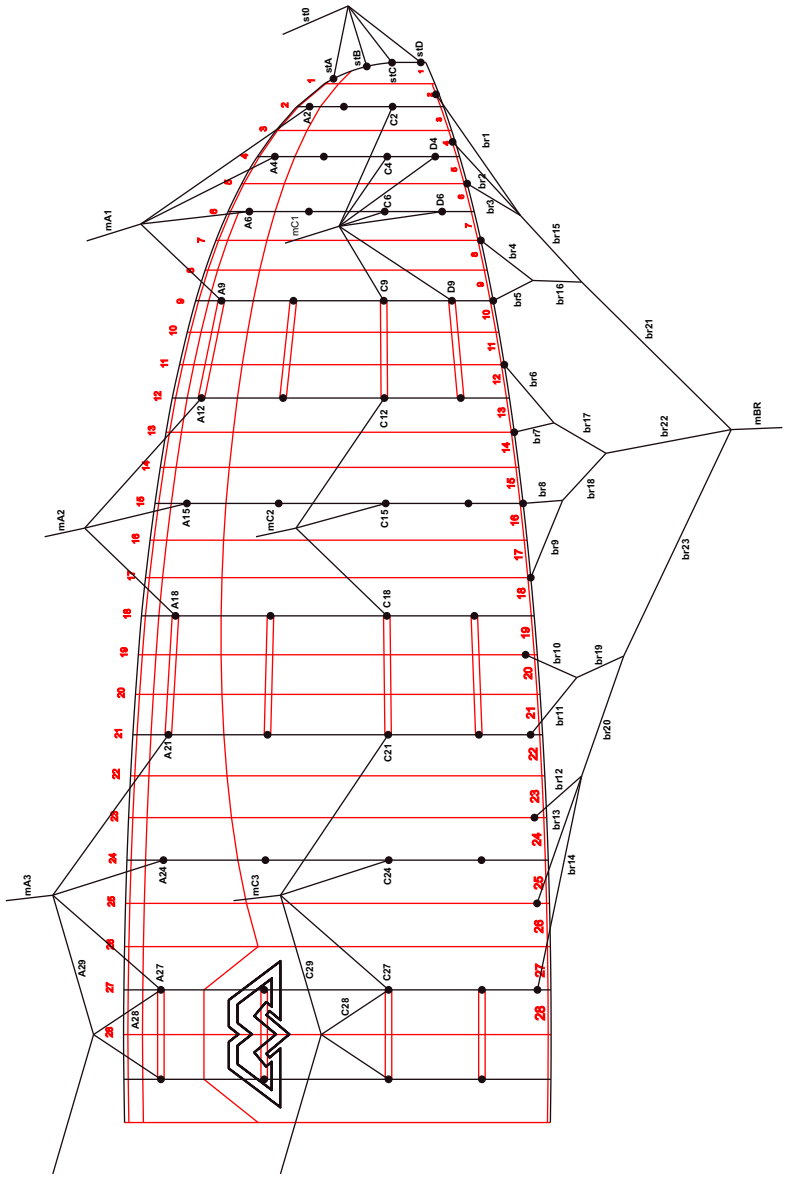
SUBO TECH CO.
981 -1 CHAGOK.RI PALTAN-GU, HWASUNG-CITY,KYUNG KI-DO, KOREA

Stainless Steel, Breaking Load 1000 kg

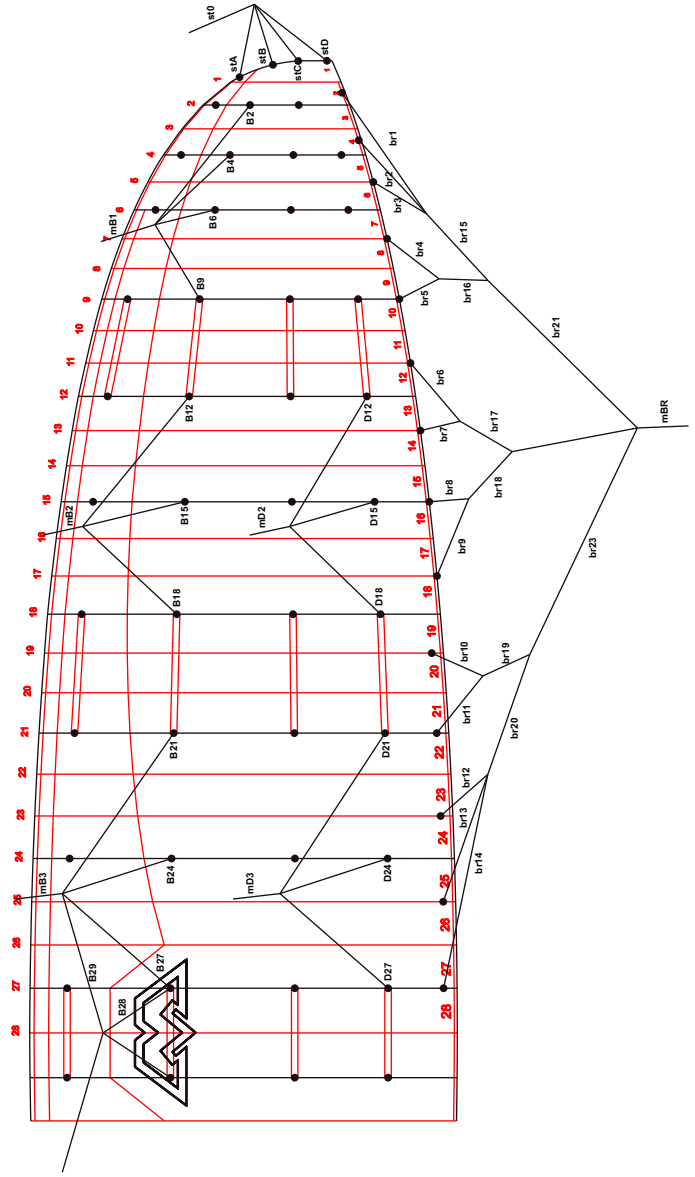
GROUND PLAN



LINE PLAN AC



LINE PLAN BD



Check-intervals

All paragliders used in flight must be checked at least every 24 months. For paragliders used by paragliding schools the period is 12 months.

Personnel authorised to carry out checks

A valid flying license and training course by National association are the basis for permission to carry out paraglider checks

Identification of glider

An identity sticker with details of certification and serial number is attached to the glider.

Components of the check

Porosity

The porosity should be checked with a porosity meter (JDC). Compare the resultant data with the producer's manual.
Porosity measures should be taken on at least three points of both the top and bottom surface. The first point should be placed 20-30 cm from leading edge in the middle of canopy. Second and third points are placed left and right from first measure point at 25% of the span. One additional measurement should be made on the top surface of the wing tip.
The identified time should be higher than 30 second (JDC). In the event of the result being less than 30 seconds, the result of the check is a fail.

Overall strength check

The check of canopy strength should be made with a Bettsometer (B.M.A.A approved Patent No. GB 2270768 Clive Betts Sales). On the top and bottom surfaces make small holes with a needle at the Aline attachment points. The exact verification should be made in accordance with the Bettsometer user manual.

Line strength check

Line strengths should be as specified in accordance with the DHV requirements. One main line should be taken from each array and have its strength checked with a tension-meter.
Required strengths should be higher than:
- A + B main lines x measured value > 8 x maximum take-off weight and higher then 800 kg for the A + B arrays.
- C + D mean lines x measured value > 6 x maximum take-off weight and higher then 600 kg for the A + B arrays.

Replacements for damaged lines must be with new original lines. Line lengths are taken from the lines data page.

Line length measurement

Lines should be separated and each line measured under a tension of 5 kg. Measurement is made from the line karabiner to the canopy according to the DHV method. Rib numbering begins in the middle of canopy and leads to the wing tip.
Measured full lengths should be documented in the inspection record and are compared with the DHV type protocol. Lengths should not differ by more than 20 mm. The opposite sides should be checked for symmetry.

Canopy line-attachment points check

Attachment points should be checked for damage and stretching. Defects, loops and flares should be repaired.

Canopy fabric check

Ribs, diagonal ribs, top and bottom surface should be checked. Any damage to sewing or tears to the fabric, which could influence flying characteristics must be repaired.

Lines

All lines should be checked for tears, breaks any damage to the sheath or signs of wear. Special attention should be paid to the sewing of the line loops. Damaged lines must be replaced.
The results should be documented in the inspection record.

Connector check

All line carabineers, trimmers (if used), speed systems and pulleys should be inspected for visible damage. Open or improperly secured connectors should be secured in accordance with the producers recommendations.

Risers

Both risers should be checked for tears, signs of wear or any damage and measured with a pull of 5 daN strength. Measured data should be documented in the inspection record. The difference must not be higher then 5 mm when compared to specified lengths.

Final check

The glider sticker and check sticker must be inspected for readability and correctness. The check must be documented with date, signature and stamp on the canopy and in the user manual.

CHECKS

Name	Company	Date	Signature & Stamp

TEST FLIGHT CERTIFICATE

Glider type: **VELVET**

Serial number: _____

Test flown on: _____

made by
MAC PARA TECHNOLOGY

Confirmation by dealer: _____

TECHNICAL DATA

PARAMOTORING size	***VELVET 21***	***VELVET 23***	***VELVET 26***	***VELVET 29***
Zoom flat [%]	90,6	95	100	105
Area flat [m^2]	**21,46**	**23,60**	**26,15**	**28,83**
Area projected [m^2]	**18,59**	**20,44**	**22,65**	**24,97**
Span flat [m]	**10,87**	**11,40**	**12,00**	**12,60**
Aspect ratio flat	**5,5**	**5,5**	**5,5**	**5,5**
Root cord [m]	**2,47**	**2,60**	**2,73**	**2,87**
Cells	**56**	**56**	**56**	**56**
Weight [kg]	**6,1**	**6,4**	**6,7**	**6,9**
Weight range free flight [kg]	**60-80**	**70-90**	**80-105**	**100-125**
Weight range powered [kg]	**85-125**	**93-140**	**107-160**	**133-190**
Min.speed [km/h]	**23-25**	**23-25**	**23-25**	**23-25**
Max.speed free flight [km/h]	**37-39**	**37-39**	**37-39**	**37-39**
Max.speed powered [km/h]	**39-43**	**39-43**	**39-43**	**39-43**
Top speed (accelerator) [km/h]	**51-53**	**51-53**	**51-53**	**51-53**
Top speed long trimmers [km/h] *	**56-58**	**56-58**	**56-58**	**56-58**
Glide ratio	**8,8**	**8,8**	**8,8**	**8,8**
Min. Sink rate [m/s]	**1,2**	**1,2**	**1,2**	**1,2**

*** special risers non certified version**