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PUNK Owner's Manual

PARAGLIDER EN / LTF B

Welcome to Bruce Goldsmith Design

BGD is a world leader in the design and production of paragliders. For many years Bruce Goldsmith and his team have been developing products with world-beating performance for pilots who want the best. We apply our competitive knowledge to design top quality products that combine the highest performance with the safe handling our customers value and respect. BGD pilots appreciate our quality and reliability. BGD's world-class status is based on the skills and expertise we have developed in combining aerodynamic design with cloth and materials technology. All BGD products are developed and made with the same skill and attention to good design that are synonymous with the ultimate performance and precision required by paragliders.

Congratulations on your purchase of the BGD PUNK

The PUNK is an intermediate sports class wing with a high top speed, strong roll characteristics and excellent feedback. Its high level of passive safety and excellent performance make it suitable for a wide range of experienced pilots. For soaring, thermalling, cross-country or waggas, the PUNK's fun, dynamic handling make it the ideal rebel partner for getting out there and playing your own game.

Your new paraglider has been designed to a high standard of safety and stability, but it will only retain these characteristics if it is properly looked after. This manual has been prepared to give you information and advice about your paraglider. If you ever need any replacement parts or further information, please do not hesitate to contact your nearest BGD dealer or contact BGD directly.

Please read this manual carefully from the first to the last chapter to ensure you get the best out of your new wing.

2. Introduction

This glider is not intended to be used for aerobatic manoeuvres.

This paraglider must not:

1. Be flown outside the certified weight range
2. Have its trim speed adjusted by changing the length of risers or lines
3. Be flown in rain or snow
4. Be towed with a tow-line tension in excess of 200 kg

It is your dealer's responsibility to test fly the paraglider before you receive it. The test flight record of this is in Section 9 of this manual. Please be sure that this has been completed by your dealer.

Failure to test fly a new paraglider may invalidate any warranty.

In order to enjoy full benefits of the BGD warranty, you are required to complete the warranty form on the website. For further information, please refer to the corresponding page on our website.

Any modification, e.g. change of line lengths or changes to the speed system, can cause a loss of airworthiness and certification. We recommend that you contact your dealer or BGD directly before performing any kind of change.

3. Preparation

Connecting the speedbar

Your paraglider is sold with accelerator risers and a speed stirrup but can be flown without the speed stirrup attached. The speed stirrup should be connected and adjusted following the instructions in your harness manual to ensure correct routing of the speedbar lines. Connect the Brummel hooks on the speedbar to those on the risers' speed system, ensuring the lines run freely and are not caught around anything (reserve handle, risers or lines).

To adjust the speedbar length, sit in your harness and ask an assistant to hold the risers up into their in-flight position. The speedbar length should be adjusted, by moving the knots, so that the bar sits just beneath your harness seat. You should be able to hook your heels into the bar, and to attain full bar extension (the two pulleys touching). Once you have initially set the bar up in this way on the ground, a test flight in calm air can be used to fine-tune the length, ensuring it is even on both sides.

On launch

1. Select a suitable takeoff area determined by wind and terrain, clear of any obstacles that may catch in the lines or damage the canopy.
2. If your paraglider has been correctly packed, you should take it to the top of the takeoff area, and allow the rolled canopy to unroll itself down the hill (if on a slope). This should leave the paraglider with the bottom surface facing upwards, the openings at the downwind end of the takeoff area, and the harness at the trailing edge at the upwind side.
3. Unroll the canopy to each side so that the leading edge openings form a semicircular shape, with the trailing edge drawn together as the centre of the arch. The harness should be drawn away from the canopy until the suspension lines are just tight.

Pre-flight inspection

Your paraglider is designed to be as simple as possible to inspect and maintain but a thorough pre-flight procedure is mandatory on all aircraft. The following pre-flight inspection procedure should be carried out before each flight.

1. Whilst opening out the paraglider check the outside of the canopy for any tears where your paraglider may have been caught on a sharp object or even have been damaged whilst in its bag.
2. Check that the lines are not twisted or knotted. Divide the suspension lines into groups, each group coming from one riser. By starting from the harness and running towards the canopy remove any tangles or twists in the lines. Partially inflating the canopy in the wind will help to sort out the lines.
3. It is particularly important that the brakes are clear and free to move. Check the knot which attaches the brake handles to the brake lines. Avoid having too many knots, as there is a risk the knots could become stuck in the brake pulleys. Both brakes should be the same length and this can be checked by asking an assistant to hold the upper end of the brake lines together whilst the pilot holds the brake handles. The brake lines should be just slack with the wing inflated when the brakes are not applied. After checking the brake lines lay them on the ground.
4. Always check the buckles and attachments on the harness. Ensure the two main attachment maillons/ karabiners from the harness to the main risers, and the individual shackles which attach the risers to the lines, are tightly done up.
5. Before the pilot attaches himself to the harness he should be wearing a good helmet. Put on the harness ensuring all the buckles are secure and properly adjusted for comfort.

Your paraglider is now ready for flight.

4. Flight Characteristics

This manual is not intended as an instruction book on how to fly your paraglider. You should be a qualified pilot or under suitable supervision, but the following comments describe how to get the best from your wing.

Weight range

Each size is certified for a certain weight range. The weight refers to the 'overall take-off weight'. This means the weight of the pilot, the glider, the harness and all other equipment carried with you in flight.

We recommend your paraglider is flown in the middle of the weight range.

If you fly in the lower half of the weight range, the turning agility will be lower and the glider will be more damped. In strong turbulence the wing tends to deform and to collapse slightly with a lower wing loading. If you mainly fly in weak conditions you might wish to fly towards the lower end of the weight range.

If you fly in the upper half of the weight range, agility and speed will be higher, and you will have greater stability in turbulence, but will be reduced self-damping in turns and after collapses. If you prefer a dynamic flight characteristic you should choose to fly higher in the weight range.

Active Piloting

'Active piloting' is a tool that will help you fly with greater safety and enjoyment. It means flying in empathy with your paraglider. This means not only guiding the glider through the air but also being aware of feedback from the wing, especially in thermals and turbulence. If the air is smooth the feedback can be minimal but in turbulence feedback is continuous and needs to be constantly checked by the pilot. Such reactions become instinctive in good pilots. In order to get the best performance from the wing, the pilot should try to control it though small brake inputs and

weight-shift, rather than constantly being present on the brakes. A small movement early is more efficient than a big brake movement later to control the wing. The more you let the glider fly at trim speed, the better performance you will get out of it. The objective of active piloting is to get the glider to fly smoothly through the air with a stable position above the head, and controlled angle of incidence. Your paraglider is highly resistant to collapse without any pilot action at all, but learning how to fly actively will increase this safety margin even further.

Harness

Your paraglider is tested with a 'GH' (without diagonal bracing) type harness. The GH category includes weight-shift harnesses as well as ABS style (semi-stable) harnesses.

Approved harness dimensions

This glider has been tested with a harness that complies with the EN standard harness dimensions.

These are:

Seat board width: 42cm.

The horizontal distance between the attachment points of the paraglider risers (measured from the centreline of the karabiners) must be:

- < 50kg = 38cm
- 50-80kg = 42cm
- > 80kg = 46cm

Take-off

Your paraglider is easy to inflate in both light or stronger winds and will quickly rise overhead to the flying position. The best inflation technique is to hold one A-riser in each hand. It will launch easily using either the forward launch

technique (best for light winds) or reverse launch (best for stronger winds).

Forward Launch

Stand facing into wind with your back to the canopy and all the A lines taut behind you, then take one or two steps back (do not walk all the way back to the canopy). Take an A-riser in each hand (the A-risers are marked with red cloth to make them easier to find) and begin your launch run pulling gently and smoothly on the A-risers. As soon as the canopy starts to rise off the ground stop pulling so hard on the A-risers but put pressure on all the risers evenly through the harness. Maintaining gentle pressure on the A-risers helps in very calm conditions. Have your hands ready to slow up the canopy with the brakes if it starts to accelerate past you.

Reverse Launch

In winds over 10km/h it is recommended to do a reverse launch and inflate the canopy using the A-risers, whilst facing it

Your paraglider has little tendency to overshoot but releasing pressure on the A-risers when it is at about 45° will help to avoid overshooting. The stronger the wind and the greater the pressure on the A-risers, the more quickly the canopy will rise.

Turning

Your wing does not require a strong-handed approach to manoeuvring. For a fast turn smoothly apply the brake on the side to which the turn is intended. The speed with which the brake is applied is very important. If a brake is applied fairly quickly the canopy will do a faster banking turn, but care must be taken not to bank too severely. To attain a more efficient turn at minimum sink, apply some brake to the outside wing to slow the turn and prevent excessive banking. The glider flies very well like this, but care must be taken not to over-apply the brakes as, even though the glider has a low spin tendency, this could result in a spin. The wing will turn far more efficiently if the you weight-shift into the turn in the harness. Remember that violent brake application is dangerous and should always be avoided.

Straight Flight

The paraglider will fly smoothly in a straight line without any input from the pilot. At the maximum in-flight weight, without the accelerator your glider will fly at approximately the trim speed noted in the Specifications table.

Thermalling

To attain the best climb rate your wing should be thermalled using a mild turn, as described above, keeping banking to a minimum. In strong thermals a tighter banking turn can be used to stay closer to the thermal's core. Remember that weight-shifting in the harness will make the turn more efficient and reduce the amount of brake required.

Care must be taken not to apply so much brake as to stall. This is easy to avoid as the brake pressure increases greatly as you approach the stall point. Only fly near the stall point if you have enough height to recover (100m).

Rapid descent procedures

Big Ears

The wing tips of your paraglider can be folded in (big ears) to increase its sink rate. The big ear facility does not mean you should fly in stronger winds, but it allows you to descend quickly without substantially reducing the forward speed of the canopy. B-line stalls also allow for fast descent, but they result in greatly reduced forward speed.

To engage big ears, lean forward in the harness and grasp the outer A-lines, or the maillons of the 'Baby-A' risers if your paraglider is equipped with these (check the Risers diagram in the Technical Data pages of this manual), keeping hold of both brake handles if possible. Pull the outer A-lines or Baby-A risers out and down at least 30 cm so as to collapse the tips of the glider. It is very important that the other A-lines are not affected when you do this as pulling these could cause the leading edge to collapse. Steering by weight-shifting with big ears in is possible. If the big ears do not come out quickly on their own, a pump on the brakes will speed things up.

Before using the big ears facility in earnest it is essential to practise beforehand with plenty of ground clearance in case a leading edge collapse occurs. Always keep hold of both brakes in order to retain control. Putting your hands through the brake handles so they remain on your wrists is a good method of doing this.

B-Line Stall

This is a fast descent method and is a useful emergency procedure. With both hands through the brake handles, take hold of the top of the B-risers, one in each hand, and pull them down by around 50 cm. This will stall the canopy and forward speed will drop to zero. Make sure you have plenty of ground clearance because the descent rate can be over 10 m/sec. To increase the descent rate pull harder on the B-risers. When you release the B-risers the canopy will automatically start flying again, normally within two seconds. Sometimes the canopy will turn gently when it exits from the B-line stall. It is normally better to release the B-risers fairly quickly rather than slowly, as the latter may result in the canopy entering deep stall.

Always release the risers symmetrically, as an asymmetric release from a B-line stall may result in the glider entering a spin. B-line stalls are useful if you need to lose a lot of height quickly, perhaps to escape from a thunderstorm. They should not be performed with less than 100 m of ground clearance (see also also Chapter 5).

Spiral Dive

A normal turn can be converted into a strong spiral dive by continuing to apply one brake. The bank angle and speed of the turn will increase as the downward spiral is continued. Be careful to enter the spiral gradually as too quick a brake application can cause a spin or an over-the-nose spiral.

If the pilot increases the descent rate of the spiral to over 16 m/s or initiates what is known as an over-the-nose spiral, the glider may require pilot input to recover. In this case all the pilot needs to do is to apply some outside brake and steer the glider out of the turn.

The over-the-nose spiral is a special type of spiral dive where the glider points almost directly at the ground. It will enter this if you make a sudden brake application during the spiral entry so that the glider yaws around. The nose of the glider ends up pointing at the ground, after which it picks up speed very quickly. This technique is very similar to SAT entry technique, and like the SAT it is an aerobatic manoeuvre, which is outside the normal safe flight envelope. Please do not practise these manoeuvres as they can be dangerous.

Care should be taken when exiting from any spiral dive. To pull out of a steep spiral dive, release the applied brake gradually or apply opposite brake gradually. A sharp release of the brake can cause the glider to surge and dive as the wing converts speed to lift. Always be ready to damp out any potential dive with the brakes. Also be ready to encounter turbulence when you exit from a spiral because you may fly through your own wake turbulence, which can cause a collapse.

CAUTION: SPIRAL DIVES CAN CAUSE LOSS OF ORIENTATION (black out) AND SOME TIME IS NEEDED TO EXIT THIS MANOEUVRE. THIS MANOEUVRE MUST BE EXITED IN TIME AND WITH SUFFICIENT HEIGHT!

Speed System

The paraglider is sold with accelerator risers and a speed stirrup as standard but can be flown without the speed stirrup attached. Launching and general flying is normally done without using the accelerator. The accelerator bar should be used when higher speed is important. A pilot flying at the maximum in-flight weight should be able to reach the Top Speed noted in the specifications table when using the accelerator system. Glide angle is not as good in this format, so it is not necessarily the best way to race in thermic conditions and the canopy is slightly more susceptible to deflations. Using the stirrup can require some effort and the pilot's balance in the harness can be affected. It may be necessary to make some adjustments to the harness. We recommend you only fly in conditions where you can penetrate into-wind with the risers level, ie no speed-bar applied, so that you have the extra airspeed should you need it.

To fly at maximum speed the speed stirrup should be applied gradually until the two pulleys on each A-riser touch.

Please do not go beyond this point by using excessive force to attempt to make the glider go faster as this may result in the glider collapsing.

IMPORTANT:

1. Practise using the speed system in normal flying.
2. Be careful flying fast in rough or turbulent conditions as deflations are more likely to occur at speed. The speed increase is achieved by reducing the angle of attack, so the canopy has slightly more collapse tendency.
3. Remember that your glide deteriorates at higher speeds. Best glides are achieved when the risers are level and the brakes are off.

Check the component parts regularly for wear and tear, and ensure that the system always works smoothly.

Landing

Landing is very straightforward. Flare in the normal way from an altitude of around 2 m when landing in light winds. It may sometimes help to take wraps on the brakes to make the flare more effective.

Strong-wind landings require a different technique. If you use the brakes to flare in a strong wind the wing tends to convert this to height. This can be a real problem. The best method is to take hold of the rear-risers at the maillons just before landing, and collapse the canopy using these when you have landed. The glider will collapse very quickly using this method. The glider can also be steered using the rear-risers but be careful not to cause a premature stall.

After landing, the B-risers can also be used to collapse the canopy, although it is more difficult to control the collapsed canopy on the ground with the B-risers.

5. Recovery Techniques

Stalls

Stalls are dangerous and should not be practised in the course of normal flying. Stalls are caused by flying too slowly. Airspeed is lost as brake pressure increases and as the canopy approaches the stall point it will start to descend vertically and finally begin to collapse. Should this occur it is important that the pilot releases the brakes at the correct moment. The brakes should never be released when the wing has fallen behind the pilot; the brakes should be released fairly slowly, to prevent the forward dive of the canopy from being too strong. A pre-release of the brake and the reconstruction of the full span is recommended to avoid the tips getting cravatted during the recovery. Pilots are advised never to attempt this manoeuvre unless under SIV instruction. This manual is not intended to give instruction in this or any other area.

Deep Stall (or Parachutal Stall)

Your paraglider has been designed so that it will not easily remain in a deep stall. However, if it is incorrectly rigged or its flying characteristics have been adversely affected by some other cause, it is possible that it could enter this situation. In the interests of safety all pilots should be aware of this problem, and know how to recover from it. The most common way to enter deep stall is from a flying too slowly, from a B-line stall or even from big ears. When in deep stall the pilot will notice the following:

1. Very low airspeed.
2. Almost-vertical descent (like a round canopy), typically around 5m/s.
3. The paraglider appears quite well inflated but does not have full internal pressure. It looks and feels a bit limp.

Recovery from deep stall is quite simple: The normal method is to simply initiate a mild turn. As the canopy starts to turn it will automatically change to normal flight, but it is very important not to turn too fast as this could induce a spin.

The second method is to pull gently on the A-risers. This helps the airflow to re-attach to the leading edge, but be careful not to pull down too hard as this will induce a front collapse.

If the deep stall is particularly stubborn and the previous methods do not work then a full stall will solve the problem. To do this apply both brakes again fairly quickly, as if to do a strong stall, then immediately release both brakes and damp out the forward surge in the normal way. The canopy will swing behind you then automatically reinflate and surge forward in front of you before returning to normal flight. It is the surge forward that exits the canopy from deep stall.

Spins

Spins are dangerous and should not be practised in the course of normal flying. Spins occur when the pilot tries to turn too fast. In a spin the pilot, lines and canopy basically stay vertical and rotate around a vertical axis. Your glider will resist spinning, but if a spin is inadvertently induced you should release the brake pressure but always be ready to damp out any dive as the glider exits the spin. Failure to damp the dive on exiting the spin may result in an asymmetric deflation.

Symmetric Front Collapse

It is possible that turbulence can cause the front of the wing to symmetrically collapse, though active piloting can largely prevent this from occurring accidentally. A pilot can reproduce the effect by taking hold of both the A-risers and pulling down sharply on them. The glider will automatically recover on its own from this situation in around three seconds. During this recovery period it is advisable not to apply the brakes as this could stall the wing.

Asymmetric Front Collapse

Your paraglider is very resistant to deflations; however if the canopy collapses on one side due to turbulence, you should first of all control the direction of flight by countering on the opposite brake. Most normal collapses will immediately reinflate on their own and you will hardly have time to react before the wing reinflates automatically. The act of controlling the direction

will tend to reinflate the wing. However, with more persistent collapses it may be necessary to pump the brake on the collapsed wing using a long, strong, smooth and firm action. Normally one or two pumps of around 80 cm will be sufficient. Each pump should be applied in about one second and smoothly released. In severe cases it can be more effective to pump both brakes together to get the canopy to reinflate. Be careful not to stall the wing completely if this technique is used.

Releasing a trapped tip (cravat)

Following a severe deflation it is possible for a wingtip to become trapped in the glider's lines (cravat). If this occurs then first of all use the standard method of recovery from a tip deflation as described in Asymmetric Front Collapse above. If the canopy still does not recover then pull the rear risers to help the canopy to reinflate. Pulling the stabilo line is also a good way to remove cravats, but remember to control your flight direction as your number-one priority. If you are very low then it is much more important to steer the canopy into a safe landing place or even throw your reserve.

NOTE: Test pilots have tested your new paraglider well beyond the normal flight envelope, but such tests are carried out in a very precise manner by trained test pilots with a back-up parachute, and over water. Stalls and spins on any paragliders are dangerous manoeuvres and are not recommended.

Loss of brakes

In the unlikely event of a brake line snapping in flight, or a handle becoming detached, the glider can be flown by gently pulling the rear risers for directional control.

6. Storage and Servicing

Storage

If you have to pack your canopy away wet, do not leave it for more than a few hours in that condition. As soon as possible dry it out, but do not use direct heat sources as it is inflammable!

Always store the canopy in a dry, warm place. Ideally this should be in the temperature range of 5°C to 13°C. Never let your canopy freeze, particularly if it is damp.

Your paraglider is made from high quality nylon which is treated against weakening from ultraviolet radiation. However, UV exposure will still weaken the fabric and prolonged exposure to harsh sunlight can severely compromise the safety of your canopy. Therefore once you have finished flying, put your wing away. Do not leave it laying in strong sunshine unnecessarily. If you are concerned about any aspect of the integrity of your paraglider please contact your nearest BGD dealer or talk to BGD directly.

Do not treat your canopy with chemical cleaners or solvents. If you must wash the fabric, use warm water and a little soap. If your canopy gets wet in sea water, wash it with warm water and carefully dry it.

Small Repairs

Small tears in the top or bottom surface (not normally the ribs) of a canopy can be repaired with a patch of self-adhesive ripstop nylon. Tears no longer than 100 mm can be repaired in this way providing they are not in a high-stress area. If you have any doubt about the airworthiness of your canopy please contact your dealer or BGD directly.

Servicing / Inspection

It is important to have your glider regularly serviced. Your BGD wing should have a thorough check / inspection every 24 months or every 150 flight hours, whichever occurs first. This check must be made by the manufacturer, importer, distributor or other authorised persons.

Please print out the service pages from this manual, fill in the number of flights and hours flown in the Service Record, and send together with your glider when it goes for inspection or servicing. The manufacturer will only accept responsibility for paraglider lines and repairs which we have produced and fitted or repaired ourselves.

Environmental protection and recycling

Our sport takes place in the natural environment, and we should do everything to preserve our environment. A glider is basically made of nylon, synthetic fibres and metal. At the end of your paraglider's life span, please remove all metal parts and put the different materials in an appropriate waste/recycling plant.

7. Technical data

Materials

The Punk is made from the following quality materials:

Top surface:	Dominico N30 42g/m ²
Bottom surface:	Porcher Ezzyfly 40g/m ²
Internal structure:	Porcher Sytex 40g/m ²
Nose reinforcing:	Plastic wire 2.4mm
Risers:	13mm nblack Kevlar / nylon webbing
Pulleys:	Harken and Spenger
Top lines:	Liros DC (unsheathed)
Middle lines:	Edelrid 8000U (unsheathed)
Lower lines:	Liros PPSL (sheathed)
Brakes:	Liros DC (sheathed)

Spare parts can be obtained directly from BGD or through our network of registered BGD repair shops.

For a full list check www.flybgd.com

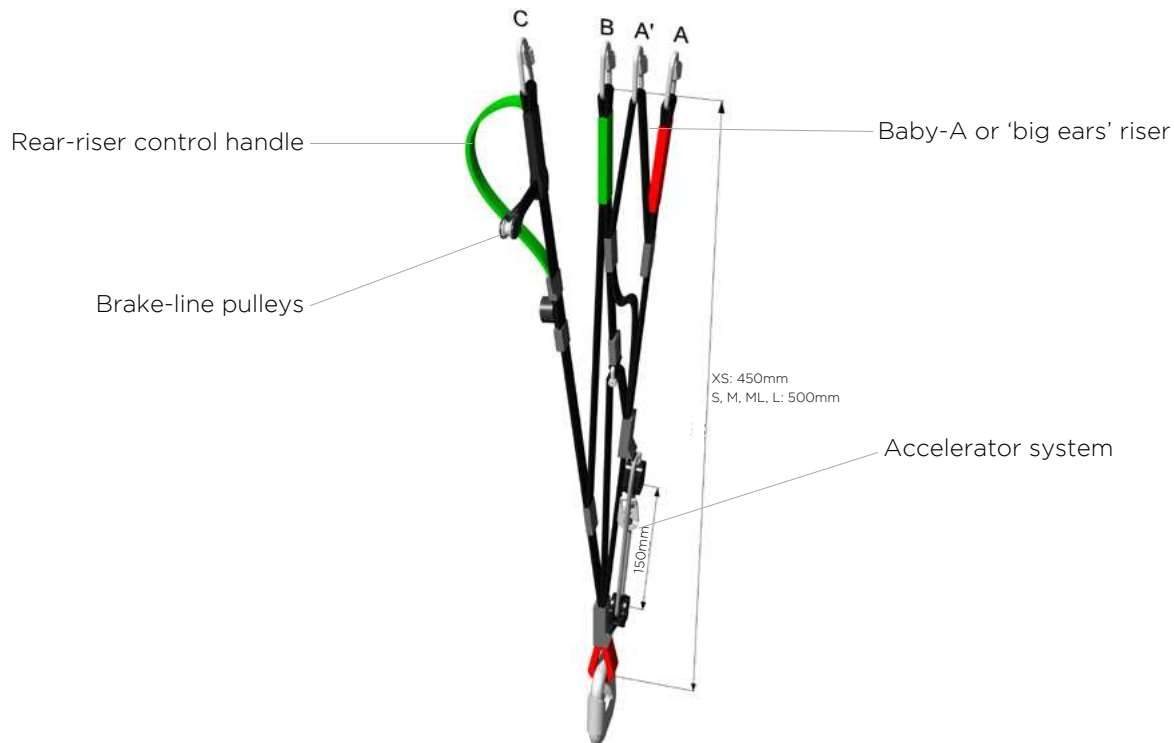
Specifications

	XS	S	M	ML	L	
Linear scaling factor	0.92	0.96	1	1.04	1.08	
Projected area	17.83	19.53	21.23	22.93	24.63	m ²
Flat area	21.00	23.00	25.00	27.00	29.00	m ²
Glider weight	4.4	4.7	5.1	5.4	5.8	kg
Total line length	204	224	243	262	282	m
Height	6.7	7.0	7.33	7.6	7.8	m
Number of main lines	3/4/3	3/4/3	3/4/3	3/4/3	3/4/3	
Cells	54/102	54/102	54/102	54/102	54/102	
Flat aspect ratio	5.42	5.42	5.42	5.42	5.42	
Projected aspect ratio	4.07	4.07	4.07	4.07	4.07	
Root chord	2.46	2.57	2.68	2.79	2.89	m
Flat span	10.67	11.16	11.64	12.10	12.54	m
Projected span	8.46	8.85	9.23	9.59	9.94	m
Weight range	50 - 65	60 - 80	75 - 95	88 - 108	100 - 125	kg
Extended weight range	50 - 70	60 - 95	75 - 100	88 - 113		
Trim speed	39	39	39	39	39	km/h
Top speed	55	55	55	55	55	km/h
Min sink	1	1	1	1	1	m/s
Best glide	10.7	10.7	10.7	10.7	10.7	
Certification	EN+LTF: B	EN+LTF: B	EN+LTF: B	EN+LTF: B	EN+LTF: B	

Overview of glider parts



Risers

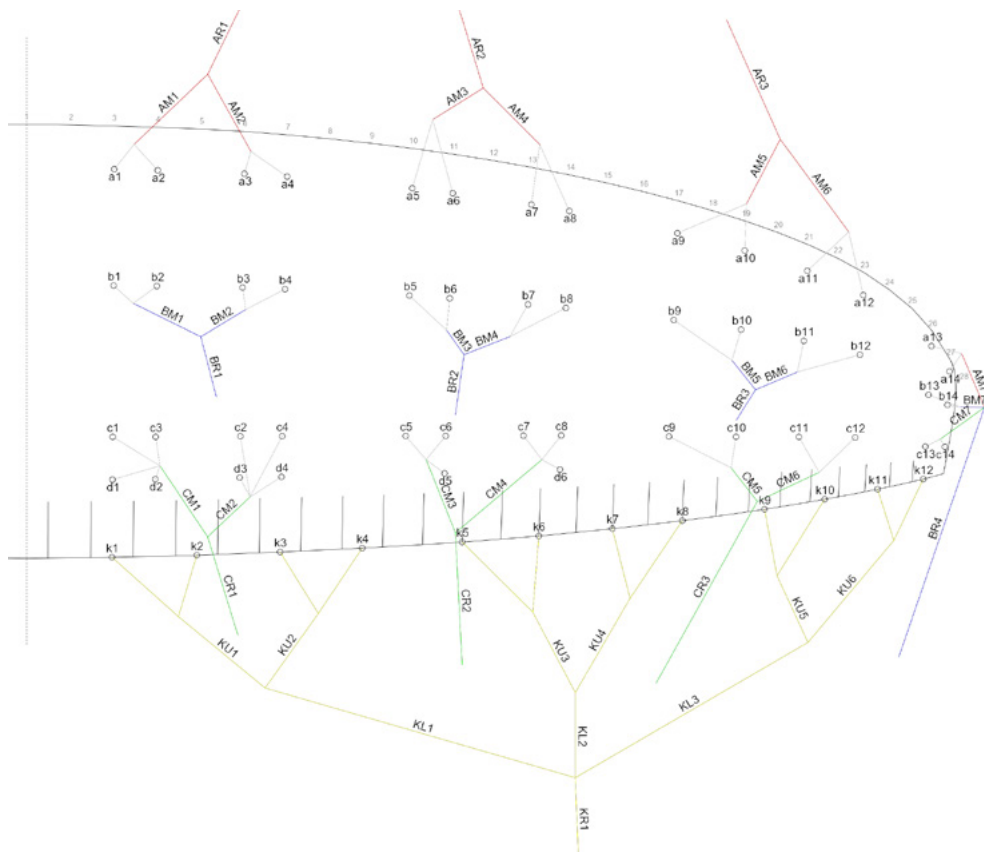


The riser set does not have trimmers, or any other adjustable or removable device.

Brake and speedbar travel

Size	Accelerator range	Brake range min weight	Brake range Max weight
XS	12cm	> 55cm	> 55cm
S	14cm	> 55cm	> 60cm
M	14cm	> 55cm	> 60cm
ML	14cm	> 60cm	> 65cm
L	14cm	> 65cm	> 65cm

Line Plan



Line length checks

All measures are in mm, with 50N line tension, this tension being slowly and gradually applied before taking the measurement.

The lengths are measured from the lower surface of the canopy to the inside edge of the maillon connecting them to the risers.

During the EN certification process, the test team has checked the lengths of the suspension lines, control lines and risers given in the manual against the sample glider, after the test flights have been carried out. The difference in length between the manual and the sample may be no more than 10mm.

The actual measurements for the wings tested during EN certification can be found in the Appendix of this manual.

Size XS

Bridle check table

	A	B	C	D	K
1	6652	6564	6681	6759	6869
2	6621	6538	6648	6729	6713
3	6600	6519	6635	6723	6598
4	6615	6521	6645	6727	6568
5	6541	6480	6608	6629	6428
6	6484	6425	6537	6613	6357
7	6433	6391	6500		6322
8	6449	6414	6541		6351
9	6325	6309	6446		6221
10	6256	6223	6326		6158
11	6172	6155	6275		6121
12	6114	6126	6317		6135
13	5946	5957	6076		
14	5911	5935	6041		

Single lines

A	B	C	D	K					
a1	472	b1	632	c1	639	d1	719	k1	954
a2	442	b2	607	c2	607	d2	690	k2	799
a3	439	b3	551	c3	411	d3	501	k3	775
a4	455	b4	554	c4	422	d4	506	k4	746
a5	444	b5	438	c5	415	d5	438	k5	755
a6	388	b6	384	c6	345	d6	449	k6	685
a7	388	b7	380	c7	334			k7	645
a8	405	b8	404	c8	376			k8	675
a9	1001	b9	984	c9	634			k9	512
a10	933	b10	899	c10	515			k10	450
a11	1011	b11	1000	c11	479			k11	361
a12	954	b12	972	c12	522			k12	376
a13	342	b13	234	c13	213				
a14	308	b14	213	c14	179				
								KU1	1180
								KU2	1089
								KU3	954
								KU4	959
								KU5	712
								KU6	764
AM1	1259	BM1	1563	CM1	1204				
AM2	1241	BM2	1600	CM2	1387				
AM3	1031	BM3	925	CM3	642				
AM4	979	BM4	894	CM4	615			KL1	2375
AM5	1384	BM5	1165	CM5	547			KL2	2359
AM6	1221	BM6	995	CM6	531			KL3	2637
AM7	544	BM7	662	CM7	803				
AR1	4447	BR1	3893	CR1	4384			KR1	2343
AR2	4592	BR2	4641	CR2	5097				
AR3	3471	BR3	3689	CR3	4810				
		BR4	4598						

Size S

Bridle check table

	A	B	C	D	K
1	7019	6926	7046	7128	7198
2	6987	6901	7012	7096	7037
3	6966	6880	6998	7090	6919
4	6982	6884	7010	7096	6891
5	6909	6841	6969	6991	6729
6	6860	6790	6897	6972	6627
7	6813	6761	6870		6579
8	6826	6780	6904		6622
9	6683	6648	6771		6518
10	6603	6561	6660		6462
11	6521	6499	6620		6426
12	6460	6470	6666		6442
13	6274	6280	6405		
14	6237	6258	6368		

Single lines

A	B	C	D	K					
a1	494	b1	661	c1	669	d1	753	k1	998
a2	463	b2	637	c2	636	d2	722	k2	838
a3	460	b3	577	c3	430	d3	524	k3	808
a4	477	b4	582	c4	443	d4	531	k4	781
a5	462	b5	455	c5	432	d5	456	k5	792
a6	414	b6	405	c6	361	d6	462	k6	691
a7	413	b7	405	c7	358			k7	665
a8	427	b8	425	c8	393			k8	709
a9	1052	b9	1034	c9	663			k9	531
a10	973	b10	948	c10	553			k10	476
a11	1057	b11	1043	c11	498			k11	378
a12	997	b12	1015	c12	545			k12	395
a13	359	b13	245	c13	224				
a14	323	b14	224	c14	188				
								KU1	1233
								KU2	1146
								KU3	1013
								KU4	992
								KU5	739
								KU6	802
AM1	1317	BM1	1636	CM1	1260				
AM2	1300	BM2	1676	CM2	1453				
AM3	1079	BM3	970	CM3	679				
AM4	1033	BM4	941	CM4	655			KL1	2505
AM5	1449	BM5	1210	CM5	555			KL2	2462
AM6	1283	BM6	1053	CM6	570			KL3	2786
AM7	570	BM7	692	CM7	840				
AR1	4676	BR1	4097	CR1	4609			KR1	2441
AR2	4836	BR2	4884	CR2	5350				
AR3	3657	BR3	3879	CR3	5044				
		BR4	4839						

Size M

Bridle check table

	A	B	C	D	K
1	7316	7219	7344	7429	7497
2	7284	7194	7310	7397	7330
3	7263	7172	7295	7391	7206
4	7280	7176	7308	7397	7176
5	7201	7133	7271	7295	7026
6	7139	7074	7195	7278	6950
7	7093	7037	7153		6913
8	7111	7064	7199		6946
9	6967	6947	7095		6800
10	6892	6854	6965		6731
11	6800	6780	6908		6688
12	6737	6748	6954		6703
13	6543	6549	6679		
14	6504	6525	6641		

Single lines

A	B	C	D	K					
a1	515	b1	689	c1	698	d1	785	k1	1041
a2	484	b2	665	c2	665	d2	754	k2	875
a3	480	b3	601	c3	448	d3	546	k3	845
a4	498	b4	606	c4	462	d4	553	k4	816
a5	485	b5	478	c5	453	d5	479	k5	824
a6	424	b6	420	c6	378	d6	491	k6	749
a7	424	b7	414	c7	364			k7	705
a8	443	b8	442	c8	411			k8	739
a9	1093	b9	1074	c9	692			k9	559
a10	1019	b10	982	c10	563			k10	491
a11	1104	b11	1092	c11	523			k11	395
a12	1042	b12	1061	c12	570			k12	411
a13	374	b13	256	c13	233				
a14	336	b14	233	c14	196				
								KU1	1286
								KU2	1193
								KU3	1039
								KU4	1047
								KU5	777
								KU6	831
AM1	1371	BM1	1704	CM1	1311				
AM2	1355	BM2	1747	CM2	1514				
AM3	1124	BM3	1008	CM3	699				
AM4	1078	BM4	977	CM4	671			KL1	2634
AM5	1509	BM5	1270	CM5	596			KL2	2627
AM6	1332	BM6	1086	CM6	579			KL3	2928
AM7	595	BM7	721	CM7	876				
AR1	4898	BR1	4294	CR1	4827			KR1	2530
AR2	5060	BR2	5115	CR2	5611				
AR3	3840	BR3	4078	CR3	5298				
		BR4	5068						

Size ML

Bridle check table

	A	B	C	D	K
1	7602	7503	7632	7721	7826
2	7568	7477	7598	7688	7655
3	7549	7456	7583	7682	7527
4	7567	7460	7596	7689	7497
5	7485	7416	7558	7582	7344
6	7421	7354	7478	7566	7265
7	7365	7316	7437		7226
8	7383	7344	7484		7260
9	7243	7223	7377		7109
10	7166	7127	7241		7037
11	7070	7050	7183		6993
12	7005	7017	7230		7007
13	6802	6808	6944		
14	6762	6784	6904		

Single lines

A	B	C	D	K					
a1	536	b1	717	c1	725	d1	816	k1	1082
a2	503	b2	692	c2	692	d2	784	k2	912
a3	499	b3	625	c3	467	d3	568	k3	878
a4	518	b4	630	c4	481	d4	576	k4	849
a5	504	b5	498	c5	472	d5	498	k5	857
a6	441	b6	437	c6	393	d6	510	k6	779
a7	441	b7	431	c7	379			k7	733
a8	460	b8	460	c8	427			k8	768
a9	1136	b9	1116	c9	720			k9	582
a10	1060	b10	1021	c10	585			k10	511
a11	1148	b11	1135	c11	544			k11	412
a12	1084	b12	1103	c12	592			k12	427
a13	389	b13	266	c13	243				
a14	350	b14	243	c14	204				
								KU1	1335
								KU2	1242
								KU3	1081
								KU4	1089
								KU5	808
								KU6	864
AM1	1424	BM1	1770	CM1	1363				
AM2	1410	BM2	1817	CM2	1574				
AM3	1168	BM3	1048	CM3	725				
AM4	1112	BM4	1016	CM4	698			KL1	2756
AM5	1568	BM5	1320	CM5	619			KL2	2753
AM6	1384	BM6	1129	CM6	602			KL3	3066
AM7	618	BM7	749	CM7	910				
AR1	5110	BR1	4484	CR1	5036				
AR2	5281	BR2	5338	CR2	5853			KR1	2632
AR3	4014	BR3	4262	CR3	5529				
		BR4	5289						

Size L

Bridle check table

	A	B	C	D	K
1	7876	7773	7909	8002	8138
2	7842	7746	7873	7968	7960
3	7823	7727	7860	7963	7830
4	7842	7732	7874	7970	7799
5	7758	7687	7834	7858	7641
6	7692	7624	7751	7842	7560
7	7634	7584	7708		7520
8	7654	7613	7757		7555
9	7509	7487	7648		7397
10	7429	7388	7507		7323
11	7331	7309	7445		7277
12	7263	7275	7494		7292
13	7052	7059	7199		
14	7010	7034	7158		

Single lines

A	B	C	D	K					
a1	555	b1	743	c1	752	d1	847	k1	1123
a2	522	b2	717	c2	717	d2	814	k2	946
a3	517	b3	648	c3	484	d3	589	k3	910
a4	537	b4	654	c4	499	d4	597	k4	880
a5	523	b5	516	c5	490	d5	516	k5	888
a6	458	b6	454	c6	408	d6	529	k6	808
a7	457	b7	447	c7	393			k7	760
a8	478	b8	477	c8	443			k8	796
a9	1178	b9	1157	c9	747			k9	603
a10	1099	b10	1059	c10	607			k10	530
a11	1190	b11	1177	c11	564			k11	427
a12	1123	b12	1144	c12	614			k12	443
a13	404	b13	276	c13	252				
a14	363	b14	252	c14	212				
								KU1	1383
								KU2	1290
								KU3	1120
								KU4	1129
								KU5	837
								KU6	895
AM1	1475	BM1	1833	CM1	1412				
AM2	1462	BM2	1884	CM2	1633				
AM3	1210	BM3	1086	CM3	751				
AM4	1153	BM4	1053	CM4	723			KL1	2873
AM5	1625	BM5	1367	CM5	642			KL2	2874
AM6	1436	BM6	1170	CM6	623			KL3	3198
AM7	640	BM7	777	CM7	943				
AR1	5314	BR1	4665	CR1	5237				
AR2	5493	BR2	5553	CR2	6085			KR1	2741
AR3	4181	BR3	4438	CR3	5750				
		BR4	5502						

8. Service Booklet

Test Flight Record

Model

Size

Serial Number

Colour

Date of test flight

Company signature and stamp

Service Record

Service No 1:

Date :

Stamp - Signature :

No flights :

Type of service :

Service No 2:

Date :

Stamp - Signature :

No flights :

Type of service :

Service No 3:

Date :

Stamp - Signature :

No flights

Type of service :

Owner Record

Pilot No 1

First name

Family name

Street

City

Post code

Country

Telephone

Email:

Owner Record

Pilot No 2

First name

Family name

Street

City

Post code

Country

Telephone

Email:

9. Closing Words

Your paraglider is an advanced, stable glider that promises many hours of safe and enjoyable flying, provided you treat it with care and always respect the potential dangers of aviation.

Please always remember that flying can be dangerous and your safety depends on you. With careful treatment your wing should last for many years. It has been tested internationally under current airworthiness standards, and these represent the current knowledge concerning the safety of a glider. However, since there are still many unknown issues, for example the effective lifespan of the current generation of gliders and how much material material ageing is acceptable without affecting the airworthiness. There are natural forces that can seriously threaten your safety, regardless of the quality of construction or the condition of your glider. Your security is ultimately your responsibility. We strongly recommend that you fly carefully, adapt to the weather conditions and keep your safety in mind.

Flying in a club or a school with experienced pilots is highly recommended.

We recommend that you fly with a standard harness with back protection and a reserve parachute. Always use good equipment and an approved helmet.

See you in the sky!

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www.flybgd.com

10. Appendix

EN line measurements

The tables below show the line measurements for the test wings, as measured by the test house during the certification procedure. These figures relate to the Bridle Check Tables in Chapter 7.

Size XS

	A	B	C	D	K
1	6653	6567	6676	6756	6868
2	6618	6536	6648	6728	6715
3	6597	6517	6634	6722	6601
4	6614	6521	6644	6729	6570
5	6539	6475	6609	6638	6425
6	6483	6419	6538	6621	6358
7	6431	6388	6502		6324
8	6449	6412	6545		6353
9	6328	6312	6447		6220
10	6259	6226	6331		6162
11	6171	6154	6276		6119
12	6115	6124	6319		6136
13	5941	5953	6071		
14	5909	5932	6037		

Size S

	A	B	C	D	K
1	7013	6927	7043	7122	7191
2	6987	6900	7011	7096	7031
3	6966	6878	6999	7094	6919
4	6986	6885	7013	7100	6889
5	6909	6838	6967	6991	6720
6	6856	6789	6897	6972	6625
7	6809	6763	6874		6582
8	6824	6781	6905		6625
9	6676	6655	6774		6508
10	6602	6568	6661		6452
11	6517	6503	6622		6412
12	6456	6471	6664		6432
13	6270	6279	6406		
14	6233	6254	6371		

Size M

	A	B	C	D	K
1	7309	7211	7343	7428	7505
2	7275	7183	7310	7396	7340
3	7256	7162	7297	7392	7212
4	7275	7165	7307	7399	7184
5	7194	7125	7268	7295	7033
6	7135	7064	7193	7275	6961
7	7086	7027	7150		6926
8	7105	7056	7195		6960
9	6964	6936	7089		6806
10	6888	6842	6961		6738
11	6795	6768	6902		6698
12	6733	6739	6946		6719
13	6537	6542	6674		
14	6495	6521	6638		

Size ML

	A	B	C	D	K
1	7603	7507	7635	7722	7689
2	7568	7480	7600	7690	7648
3	7546	7455	7586	7683	7521
4	7568	7460	7600	7694	7491
5	7479	7413	7562	7583	7332
6	7418	7351	7482	7573	7253
7	7362	7312	7443		7214
8	7381	7343	7491		7250
9	7246	7225	7381		7099
10	7171	7130	7247		7028
11	7069	7053	7186		6983
12	7002	7019	7233		6999
13	6807	6814	6950		
14	6766	6790	6910		

Size L

	A	B	C	D	K
1	7873	7767	7902	7997	8127
2	7833	7737	7867	7964	7953
3	7817	7719	7858	7958	7824
4	7834	7725	7871	7969	7791
5	7746	7674	7829	7855	7630
6	7681	7614	7748	7843	7549
7	7622	7575	7707		7507
8	7644	7606	7757		7546
9	7499	7485	7647		7385
10	7425	7384	7501		7310
11	7323	7306	7440		7267
12	7256	7270	7487		7286
13	7054	7061	7203		
14	7011	7035	7163		