
Flow
PARAGLIDERS

WELCOME

"Flow is a term used to describe the complete (body-mind-soul) feeling of being so totally engaged in an activity that there is a sense of complete immersion in the experience. Self-conscious thoughts give way to feeling at one with the activity and the environment, and time is no longer an ever-present consideration."

The experience of flying a paraglider is what inspires us. The pure, focused concentration, the feeling of complete immersion with the environment, and the intrinsic pleasure in the activity itself are all sure signs of the flow experience.

Thank you for flying Flow Paragliders. We recommend that you read this manual before the first flight. This manual is designed to help you to quickly familiarize with this beautiful glider.

Table of Contents

General information

User manual for the Spectra2

This manual offers all the necessary information that will familiarise you with the main characteristics of your new paraglider. Although this manual informs you about your glider, it does not offer the instruction requirements necessary for you to be able to pilot this type of wing.

Flow Paragliders' Spectra2 is our new CCC 2-liner designed for the world's best pilots. The Spectra2 is our most complex glider where performance was achieved without compromising safety. Spectra2 has numerous technological features and state of the art technology. Spectra2 is a cohesive glider and comfortable both in climb and glide at speed and pilots who are accustomed to fly high performance gliders will feel comfortable and at ease to fly the Spectra2 to the maximum.

The Flow Spectra2 has been certified as a CCC, having met all the requirements of EN 926-1 strength tests and CIVL CCC Paragliders 2021 Anexe B.

This user manual version V01.01 is dated: 02/02/22.

Please note that any changes to the paraglider will invalidate the result of the certification. Correct usage of the glider is the pilot's responsibility. The manufacturer and distributor do not accept liability for loss or damage as a result of the misuse of this paraglider. It is the pilot's responsibility to comply with legal regulations and to maintain the airworthiness of the aircraft.

Flow Paragliders PTY LTD – 2 Executive Drive, Burleigh Waters QLD 4220, Australia – info@flowparagliders.com.au

PILOT'S PROFILE

The Spectra2 was built for the most demanding and challenging conditions for pilots who are looking for a superior performance glider in a comfortable and well managed package. Spectra2's has increased stability in all flying envelope to the Version1. At speed the glide is superior, and stability has been increased noticeably. The feel on the rear riser steering has been refined offering better feedback and control. Its excellent thermaling ability combined with its increased top speed make the glider a real race machine for PWC competitions and World Record flights.

We concentrated on key areas and perfected those elements for improved performance without compromising safety.

This has resulted in a glider which deforms less in turbulence, converts lift more efficiently, offers less distortion when AoA is changed, and offers a better overall feedback and connection pilot x glider

With 111 cells a AR of 8 and a reduced total line count the Spectra2 is the vanguard in glide performance and technology.

Spectra2 has numerous features. Special attention was given to some key elements on the design, such as:

- leading edge structural integrity
- new airfoil
- new arc
- general internal spanwise and chordwise rigidity and sail tension
- relative alignment of the airflow in relation to the wingtips, reducing drag.

Those hidden technologies combined offer true performance gains and usability.

Spanwise and chordwise tension and rigidity were recalculated and optimized which improved handling and glider solidity notiably.

Spectra2 is a cohesive glider both in climb and glide and pilots who are accustomed to flying high performance gliders will feel comfortable and at ease to fly the Spectra2 and push it to the maximum.

Even though the Spectra2 transmits a great deal of comfort in flight it is important to emphasise that a glider of this calibre should only be flown by pilots who have experience in flying high aspect ratio gliders, who are competent in the recovery techniques. For pilots who understand about active piloting and who are confident to fly in turbulent conditions and have an understanding of flying high performance 2 liners gliders.

Spectra2 is not suitable for beginner or intermediate pilots, aerobatics, training or tandem flights.

SPECIFICATIONS

	XS	S	M	ML	L	XL
FLAT AREA (M2)	20.35	22.20	23.90	24.90	25.80	26.5
PROJECTED AREA (M2)	17.18	18.53	19.94	21.02	21.53	23.39
FLAT WINGSPAN (M)	12.71	13.3	13.87	13.80	14.41	14.52
PROJECTED SPAN (M)	10.23	10.5	10.90	11.22	11.32	11.65
ASPECT RATIO	8.0	8.0	8.0	8.0	8.0	8.0
PROJECTED AR	5.95	5.95	5.95	5.95	5.95	5.95
MAX CHORD	2.00	2.12	2.20	2.32	2.28	2.40
NUMBER OF CELLS	111	111	111	111	111	111
GLIDER WEIGHT (KG)	5.9	6.0	6.2	6.25	6.35	6.4
TAKE OFF WEIGHT (KG)	80-95	95-105	100-115	105-120	110-125	115-135
CERTIFICATION	CCC	CCC	CCC	CCC	CCC	CCC

TAKE-OFF, FLIGHT, AND FLYING TECHNIQUES

The Spectra2 should be flown as a normal paraglider. However, there are several points listed below which should help you to familiarize with your new paraglider quicker.

The Spectra2 was designed as a foot launchable solo paraglider only. The Spectra2 may be tow-launched. It is the pilot's responsibility to use suitable harness attachments and release mechanisms and to ensure that they are correctly trained on the equipment and system employed.

Before take-off

- Check the canopy for rips or tears. Also, inspect the internal structure (ribs, diagonals) and seams.
- Check that the lines are not damaged or tangled.
- Check if the quick links connection between lines to risers are undamaged and tightened.
- Check that the risers are not damaged or twisted.
- Check if the speed system works freely and make sure that the lines are long enough.
- Check that the brake handles are correctly attached and that each line runs freely through the pulley.

Take-off

Lay the paraglider out with the leading edge in a horseshoe shape. Hold the A risers close to the quick links and move forward until the lines get stretched. You should now be perfectly centred with your wing. With no wind or light headwind, with lines stretched, Spectra2 inflates rapidly and rises over your head with some dynamic steps. We recommend that you do not pull risers too forward or down, which could cause a collapse of the leading edge, but simply follow them until the glider reaches its angle of flight. It is important that the centre of gravity of your body stays in front of your feet during the inflation of the glider to constantly load the risers. A controlled inflation allows you to check the canopy and lines during the last phase as it comes up and thus avoids the need to use brakes. Depending on the wind conditions or the slope, an adequate use of brakes can help you to take-off quicker.

Landing

Because of the exceptional glide for this type of glider, high caution is recommended in the stages of approaching and landing. Spectra2 is a fast glider, any action on the brakes may cause significant reactions. It is therefore recommended to execute the first flights in a familiar environment and under easy conditions. With negative steering, there is more time for the manoeuvres to be performed steadily, which results in reducing the pendulum movements of the paraglider. Reminder: Negative steering involves applying the brakes symmetrically by about 30% of the maximum range to slow the paraglider and a simultaneous turning by means of releasing the outside brake. Speeding up just prior to landing allows a more effective flare and therefore a gentler landing.

Turning

Spectra2 was designed to perform well in turns. Negative steering (see above) on one hand slows the paraglider in certain phases of the flight and on the other hand reduces excessive rolling during turn reversals. It is not only designed to turn (with approx. 15% brake) but also to fly slowly in order to help identify the areas of lift and to keep the paraglider flatter to minimize the sink rate in a turn (with 5% brake). Symmetrical brake-input at 5-10 % enables you to keep your wing under control – to brake further when pitching and to release when the canopy banks up.

RAPID DESCEND

Techniques

In order to descend, the paraglider must fly away from the areas of lift. In case any problems occur, the following techniques might be used to increase the sink rate.

- ***Spiral Dive**:* Spectra2 is a manoeuvrable wing which responds to any input easily. To initiate the spiral, apply one brake progressively to about 35% and hold it in its position. The speed of rotation, brake pressure and the centrifugal force experienced, all progressively increase. The angle or the speed of rotation can be decreased or increased by releasing or pulling the brake by several centimetres. Once mastered the spiral allows you to descend by more than 10 m/s. Movements which are extremely abrupt or badly synchronized or very quick initiation of the spiral can result in an asymmetrical collapse or a spin. CAUTION: Spiral dives should be executed with care. To exit the spiral dive, the kinetic energy must be converted to potential energy by slowly releasing the inside brake.

- ***B-line Stall:*** This maneuvre is not possible on this glider. Traditional B-line stalls are not possible with 2 liners. Pulling the B-lines firmly will result in a full stall. Do not do it.

- *Big ears*: Big ears is a moderate descent method, reaching -3 or -4 m/s, speed reduces slightly between 3 and 5 km/h and piloting becomes limited. The angle of attack and the wing loading also increases.

  Push on the accelerator to restore the wing's horizontal speed and the angle of attack. To activate ears, take the line ***amain3*** and simultaneously, smoothly pull them outward and downward. The wingtips will fold in. Let go of the lines and the ears will re-inflate automatically. If they do not re-inflate, gently pull on one of the brake lines first and then on the opposite side. For directional control while using the Big Ears, use weight shift.

  We recommend the pilot to re-inflate asymmetrically, to avoid unnecessary change on the angle of attack, more so if you are flying near the ground or flying in turbulence.

PERFORMANCE & USE OF BRAKES

Use of brakes

Spectra2's best glide is at a trim speed (no brakes) – about 39 km/h. The minimum sink rate is achieved by applying approx. 15% of the brakes. When using more than 30% of the brakes, the aerodynamics and the performance of the glider are likely to deteriorate and the effort to manoeuvre will increase quickly. In case of extremely high brake pressure there is a great risk of a stall. Which occurs at a full brake travel (100% of the brakes) 65cm. In normal flying conditions the optimal position for the brakes, in terms of performance and safety, is within the top third level of the braking range.

Active B Riser *Control*

When gliding at trim speed or in accelerated flight, we recommend piloting the wing with the B-risers. This gives an improved feel and control over the wing enabling you to fly actively without using the brakes (which would cause drag and pitch movements). The direct feel allows you to stop collapses before they happen and maintain higher speeds and higher levels of efficiency.

Use of Speed Bar

Spectra2 is equipped with a speed system. The profile of Spectra2 has been designed to fly stable through its entire speed range. It is useful to accelerate when flying in strong winds or in extreme descending air. For fitting and positioning the speed bar consult the instructions of the harness manufacturer. Before every flight check that the speed bar works freely and that the lines are long enough to ensure that it is not engaged permanently. Use of the speed bar increases the maximum speed of the paraglider by up to 30% of the trim speed. However, it does reduce the angle of attack and therefore there is a risk of a frontal (or asymmetric) collapse. We therefore do not advise to use the speed bar near the ground.

ASSYMETRIC & FRONTAL COLLAPSES

Despite the tests proving Spectra2 recovers on its own after collapses, it is a CCC glider therefore active piloting is recommended in case of an asymmetric or frontal collapse. Active piloting will reduce the loss of altitude and a change of direction.

Asymmetric collapse

Despite the great stability of the profile of the Spectra2, heavy turbulent conditions may cause part of the wing to collapse asymmetrically. This usually happens when the pilot has not foreseen this possible reaction of the wing. To prevent the collapse from happening, pull the brake line corresponding to the compromised side of the wing, this will increase the angle of attack. If the collapse does happen, the Spectra2 will not react violently, the turn tendency is very gradual, and it is easily controlled. Lean your body towards the side that is still flying in order to counteract the turn and to maintain a straight course, if necessary, slightly slow down the same side. The collapse will normally open by itself but if that does not happen, pull completely on the brake line on the side, which has collapsed (100%). Do this with a firm movement. You may have to repeat this operation to provoke the re-opening. Take care not to over-brake on the side that is still flying (turn control) and when the collapse has been solved; remember to let the wing recover its flying speed.
Bring both brakes down symmetrically to speed up the reopening of the paraglider, and then raise your hands back up immediately.

Frontal (symmetric) collapse

The profile of the Spectra2 has been designed to widely tolerate extreme changes in the angle of attack. A symmetric collapse may occur in heavy turbulent conditions, on entry or exit of strong thermals or lack of adapting the use of the accelerator to the prevailing air conditions. Symmetrical collapses usually re-inflate without the glider turning, but you can symmetrically apply the brake lines with a quick deep pump to quicken the re-inflation. Release the brake lines immediately to recover optimum flight speed.

FULL STALL

Certain behaviour or weather conditions can cause a full stall. This is a serious deviation from normal flight and can be difficult to manage. If a stall occurs at less than 100 m above the ground, throw your reserve parachute. Main causes of a full stall:

- A poorly timed or an extensive use of brakes when the air speed of the wing is reduced.
- Soaked or heavily drenched leading edge (from rain or a cloud) can result in a stall due to an uneven airflow over the leading edge.

Whatever the cause, a full stall can be either symmetrical or a in a configuration of a spin.

Your first reaction should be to fully raise both hands. This normally allows the glider to return to normal flight but If nothing happens after a few seconds, apply the speed bar to encourage the wing to regain normal flight. Ensure the glider has returned to normal flight (check your airspeed) before using the brakes again.

FLYING WITHOUT BRAKES

If a brake line or pulley breaks, it is possible to fly the Spectra2 using the B-risers (rear riser). The movements must be well controlled as the deformation of the wing, due to the traction on the B risers, is greater than that produced by using the brakes.

CRAVATS

If the tip of your wing gets stuck in the lines, this is called a cravat. Due to the large amount of drag, cravats can turn your wing into a spiral dive very quickly. This can be disorientating and difficult to control if allowed to develop. To recover from a cravat immediately, anticipate the movement of the wing, first stabilise the direction of your wing with outside brake and weight shift. Once you have control of the rotation and sink rate, apply strong deep pumps of the brake on the cravated side whilst weight shifting away from the cravat. It is important to lean away from the cravat otherwise you risk spinning or deepening the spiral. The aim is to empty the air out of the wing tip whilst it is unloaded. Correctly done, this action will clear the cravat. If it is a very large cravat and the above options have not worked, then a full stall is another option. This should not be attempted unless you know what you are doing and have a large amount of altitude. Remember, if the rotation is accelerating and you are unable to re-open the wing or control the decent rate, you should throw your reserve parachute whilst you still have enough altitude.

SIV AND COLLAPSE LINES

The Spectra2 was certified with the use of collapse lines, therefore if you wish to induce collapses during SIV training, collapse lines must first be installed correctly. Collapse lines are available as an optional extra and should be added to the wing before inducing collapses. The collapse lines will come with an added-on instruction manual and an extra manual explaining how they should be installed properly. Be sure to attach to both sides of the canopy for symmetric deflations. Flow Paragliders would like to remind you that SIV manoeuvres should be learnt under the supervision of a qualified instructor and always used with caution. We strongly recommend expert tuition over water with all the necessary safety precautions in place. Only attempt SIV with this wing if you have previous SIV experience with a high aspect ratio wing. Ensure that you fully understand the correct and safe use of this equipment before attempting SIV

ADJUSTMENT OF THE HARNESS

For test flights the pilots used ABS harnesses with the following set-up:

SIZE	Distance from seat board	Distance between hang points
Spectra2 S	43cm	44cm

We recommend adjusting the harness in a very similar way to the test adjustment. Excessive cross-bracing increases the risk of twisting the risers. A looser setting will result in a tendency to lean towards the collapsed side. Lower hang points reduce the roll-stability of your harness and can slow down the reopening of asymmetric collapses. Higher hang points (+ 2 up to +4 cm) have no influence on inflight safety and can therefore be tolerated.

MAINTENANCE & CHECKS

The Spectra2 is sophisticated piece of equipment and should be technically periodically checked to ensure proper airworthiness.

Maintenance tips

The life of your paraglider therefore depends largely on the care which you maintain and use it. To maximize life span of your wing, respect the following rules:

- Avoid dropping the canopy on its top surface or on its leading-edge during inflation or landing.
- Avoid dragging it across the ground when moving it.
- Don‘t expose it unnecessarily to sunlight.
- Choose a packing technique that doesn‘t damage the plastic rods and that doesn‘t crease the internal structure excessively.

Always use the protective bag to avoid direct contact with the harnesses and buckles of any friction between the blade and the rucksack.
Never store your paraglider when it is damp.
If immersed in sea water rinse immediately with fresh water. Do not use any detergents. Dry your paraglider away from direct light in a dry and well-aired place.
Empty any foreign bodies from your paraglider regularly, for example sand, stones or animal or vegetable matter which may eventually decay. Twigs, sand, pebbles, etc. damage tissue in successive folds and organic debris of vegetable or animal origin (insects) can promote mould growth.

Periodic inspections

The paraglider has undergone a series of tests during the production process and consequent flight tests before the delivery. It is delivered with a standard brake setting same to the one used during the testing. Periodic Checks & Repairs: for safety reasons, it is recommended that the paraglider is checked at least once a year, or after 100 hours and anytime there is a change in its behaviour. However, if you are a frequent flyer (more than 100 hrs per year), we recommend that you check your glider every 100 hours. The person performing the check should inform you about the condition of your glider and if some parts will need to be checked or changed before the next normal service check period.

WARRANTY

Spectra2 is guaranteed for two years or 250 hours against any production fault since the date of purchase.
The guarantee does not cover:

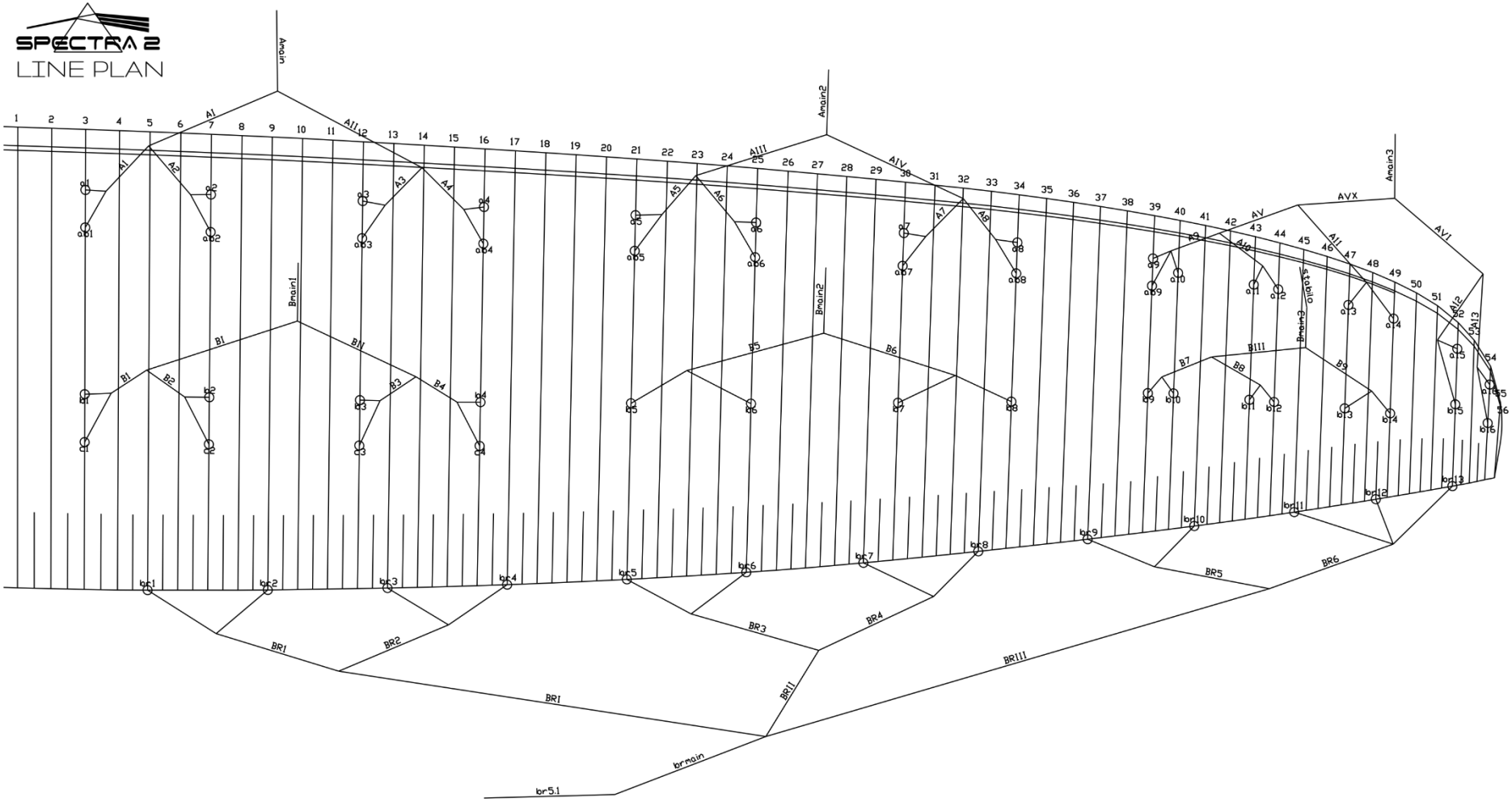
- Damage caused by misuse
- Neglecting the regular maintenance
- Overloading or misuse of the glider
- Damage caused by inappropriate landings

SUMMARY

Safety is the single most important thing in our sport. We recommend to always be alert of the weather, fly as regularly as you can and ground handle as much as possible. Practicing ground handling will keep your skills alive and will support you especially when conditions at launch aren't perfect or the site is difficult.
Please always respect the weather! Monitor the conditions and the forecast closely and understand which conditions are right for your level of flying or for flying in general. Lot's of pilots get hurt due to misjudging weather conditions and we don't want you to be one of them.
We would also like to emphasise respecting our beautiful nature and looking after your flying sites. If you need to dispose the wing, please don't dispose of it in the normal household waste but in an environmentally responsible way. If you are unsure, please contact your council.

SPECTRA 2

LINE PLAN

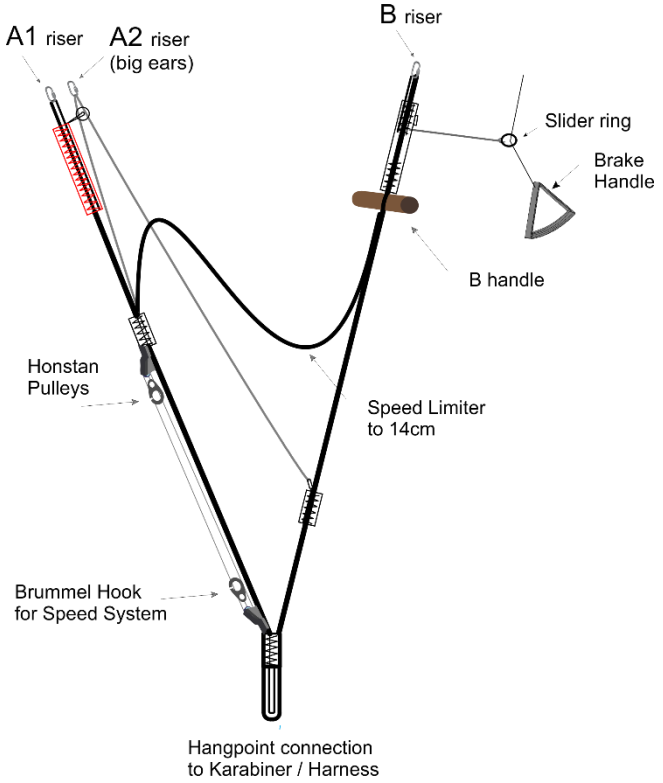


RISER DIAGRAM

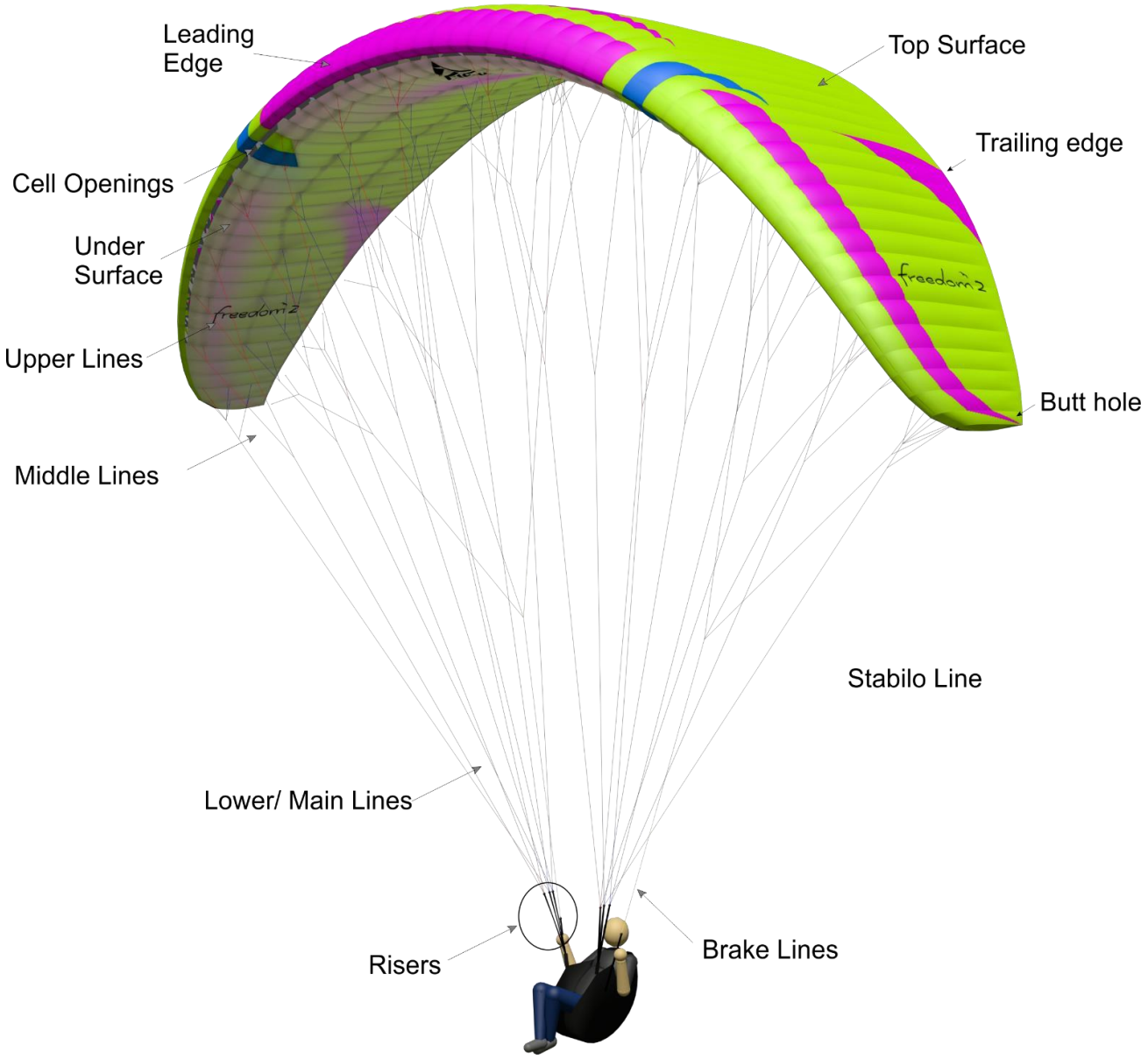
Spectra2 has been designed with 2 risers per side. The A1 riser is covered with RED webbing, to allow for easy identification. The A risers are split into two, the smaller riser - holding only the outermost A line - is A2 and has been designed this way to make applying big ears simple. They also feature ergonomic wooden handles for efficient B-riser control. The risers do not feature trimmers.

Sizes S, M, ML, L

Risers	trim	accel
A1	541	401
A2	538	468
B	525	525
Acc.	140	mm
Trimmer	n/a	mm



OVERALL ILUSTRATION



MATERIALS

CANOPY	FABRIC CODE	SUPLIER
Top surface	Dominico DOKDO 30D MF/ Porcher SKYTEX 27 CLASSIC 2	Dominico terch Corp. – Korea Porcher Industries - France
Bottom Surface	Porcher SKYTEX 27 CLASSIC 2	Porcher Industries - France
Supported Ribs	Porcher 7000 E91	Porcher Industries - France
Unsupported Ribs	Porcher 9017 E29	Porcher Industries - France
Leading Edge Reinforcement	2.5/1.8/ Nylon rods	Porcher Industries - France

SUSPENTION LINES	FABRIC CODE	SUPLIER
Upper Cascades	Edelrid 8000U 130/090/070/050kg - Edelrid 9200 030kg - Liros DC30	EDELRID - Germany
Middle Cascades	Edelrid 8000U 190/130/090/070/050kg Edelrid 9200 030kg – Liros DC30	EDELRID - Germany
Main Lines	Edelrid 8000U 360/190/130/050kg Liros DSL 140kg	EDELRID - Germany LIROS GMHB - Germany

RISERS	FABRIC CODE	SUPLIER
Shackles	Maillon Rapide	ANSUNG PRECISION - Korea
Riser Webbing	12mm zero stretch polyester webbing	Guth&Wolth GMBH - Germany
Pulleys	Pulleys Ronstan ball bearing	Ronstan - Australia

In case of any doubts regarding the information in the manual contact your FLOW PARAGLIDERS dealer.
For spare parts or information in how to obtain them get in contact with us directly or with your local dealer.

Flow Paragliders PTY LTD. – Beechmont, Australia – info@flowparagliders.com.au

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Test laboratory for paragliders, paraglider harnesses and paraglider emergency parachutes

paragliding by air turquoise

Suspension line calculation

			[kg]	[daN]
Inspection certification number:	CCC_026.2021			
Manufacturer name:	Flow Paragliders	Maximum weight:	95	93.1
Model name and size:	Spectra2 XS			
Report valid for the other sizes of model:	n/a			

Line specification and line breaking strength after bending in [daN] (strongest to weakest value) (1)

	Manufacturer	Type no.	Breaking strength [daN]
1	Edelrid	8000U-360	195.8
2	Edelrid	8000U-190	99.6
3	Edelrid	8000U-130	57.8
4	Edelrid	8000U-090	41.8
5	Edelrid	8000U-070	23.9
6	Edelrid	8000U-050	28
7	Edelrid	8000U-025	22.3
8	Liros	PPSL-160	106.8
9			
10			
11			
12			

Line number	Manufacturer	Type no.	Breaking strength [daN]
Handle knot (2)	Edelrid	10N-200	109.1

Line breaking strength, theoretical calculation (see details on the following pages) (3)

		[daN]	[g]
Sum A+B+C+D+ Stabilo lines	Level 1	1594.40	17.13
	Level 2	1327.20	14.26
	Level 3	1656.40	17.79
	Level 4	2546.40	27.35
	Level 5	2826.40	30.36

A, B and C, the sum of each level must be equal or exceed 2300daN or 23g

Result **NEGATIVE**

		[daN]
Sum each level of brake lines	Level 1	218.20
	Level 2	199.20
	Level 3	168.00
	Level 4	267.60
	Level 5	579.80

The break lines strength sum of each level must be equal or exceed 150 [daN] and the handle knot shall have a minimum breaking strength of 75 [daN]

Result **POSITIVE**

Place of inspection: **Villeneuve**
Date of issue: **06.10.2021**
Inspector: **Andrea Wigger**

Flow PARAGLIDERS

SPECTRA 2

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Test laboratory for paragliders, paraglider harnesses
and paraglider reserve parachutes

paragliding by air turquoise

FAI Category 1 Cross-Country events
2020 Edition | Revision 1.0 | Effective May 1,2020

ACKNOWLEDGMENT of CONFORMITY

Air Turquoise SA,

Having thoroughly tested in flight and strength following CCC regulations

Manufacturer:	**Flow Paragliders PTY LTD**
Address:	5 Shorehaven Place Varsity Lakes 4227 QLD Australia
Glider model:	**Spectra2 XS**
S/N:	F0006
Conformity number:	**CCC_ 026.2021**
Place of test:	Villeneuve
Classification:	**FAI CCC**
Total weight in flight:	maxi 95 kg
Date of issue:	06.10.2021

Andrea Wigger
Manager
Air Turquoise SA

SPECTRA2 XS – CIVL MEASUREMENTS - SPORTING CODE S7 G

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Canopy dimensions REPORT

CCC

st report ref. number: CCC_026.2021

Name:	Spectra2	Place:	Villeneuve	Manufacturer name:	Flow Paragliders
Size:	XS	Date of measurement:	05.10.2021	Representative	Felipe Rezende
Maximum load [kg]:	95	Inspector:	Thurnheer Claude	Street:	5 Shorehaven Place
Serial number:	F0006			Post code / place:	Varsity Lakes 4227 QLD
Date of reception:	03.09.2021			Country:	Australia

Canopy dimensions

	RIB nb from center	Measure mm	Tension	Tolerances
Full Span	110	12503.7	5 daN	2%
1/2 Trailing Edge	55	6318.2	5 daN	1%
Chord A	1	2031.5	1 daN	1%
Chord B	25	1767.1	1 daN	1%

Aspect ratio 4*span / (chord A+2.5*Chord B)
7.76

Nbr cells (total)
111

Chord lenght, inlet position, tabs position measured from trailing edge.

First fully lined RIB of group 1 (from center)

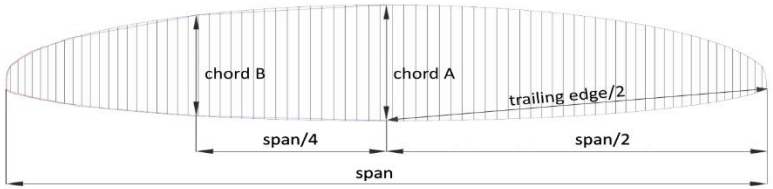
	Rib n°	Distance	Tension	Tolerances
Chord	3	2018.8	1 daN	+/-10mm
Top of inlet	3	1930.5	5 daN	+/-10mm
Bottom of inlet	3	1900	5 daN	+/-10mm
Tab Aa	3	1760.4	5 daN	+/-10mm
Tab Ab	3	1648	5 daN	+/-10mm
Tab B	3	855.9	5 daN	+/-10mm
Tab C	3	647.2	5 daN	+/-10mm

First fully lined RIB of group 2 (from center)

	Rib n°	Distance	Tension	Tolerances
Chord	21	1838.5	1 daN	+/-10mm
Top of inlet	21	1763.6	5 daN	+/-10mm
Bottom of inlet	21	1730.7	5 daN	+/-10mm
Tab Aa	21	1614.8	5 daN	+/-10mm
Tab Ab	21	1505.3	5 daN	+/-10mm
Tab B	21	792.3	5 daN	+/-10mm

Last lined rib (stabilo) (from center)

	Rib n°	Distance	Tension	Tolerances
Chord	54	439	1 daN	+/-10mm
Tab A	54	361.4	5 daN	+/-10mm
Tab B	54	223	5 daN	+/-10mm



Line plan REPORT

Line plan

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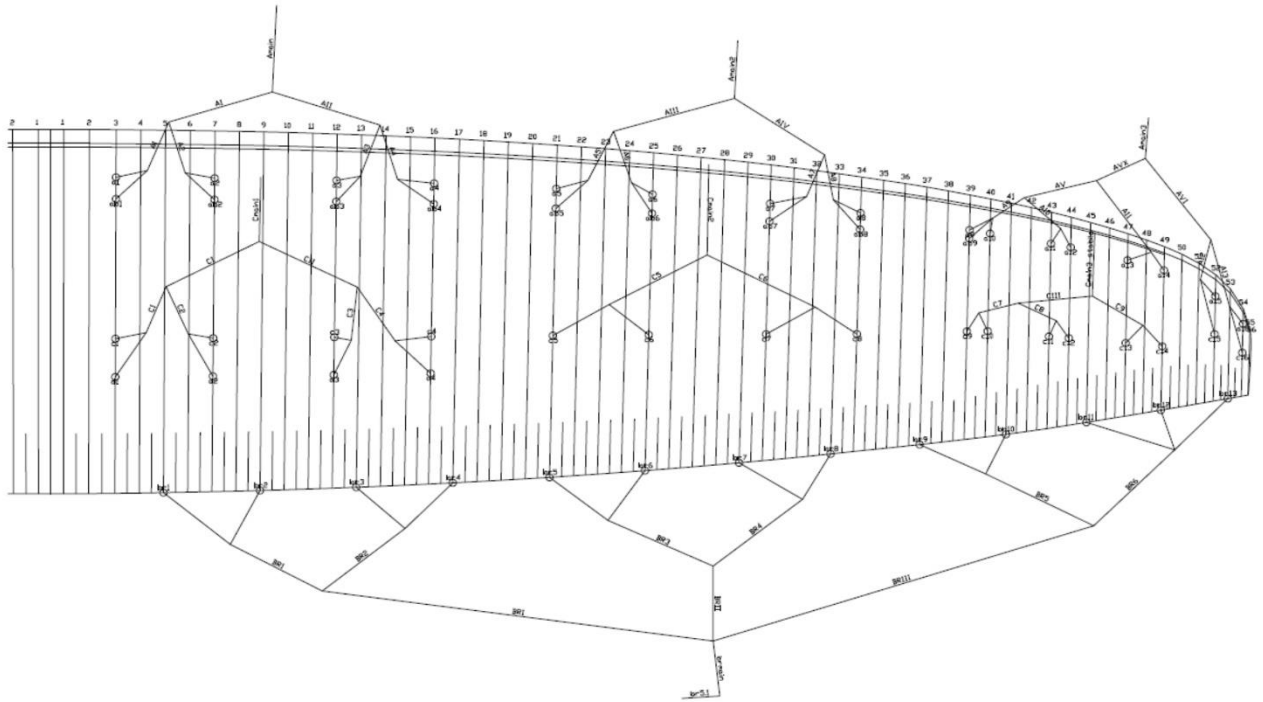
SPECTRA 2

LINE PLAN



Flow

The validation of this test report is given by the signature of the test manager on the Acknowlegement of conformity

Flow PARAGLIDERS

SPECTRA 2

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Test laboratory for paragliders, paraglider harnesses and paraglider emergency parachutes

paragliding by air turquoise

PG MEASUREMENT REPORT — MEASUREMENT OF FLIGHT TEST SAMPLE — CCC

Report No. :	CCC_026.2021	Sample name:	Spectra2 XS	Date measure:	05.10.2021	Place:	Villeneuve
Manufacturer:	Flow Paragliders	S/N:	F0006	Responsible:	Claude Thurnheer		

Total line length including risers [mm]

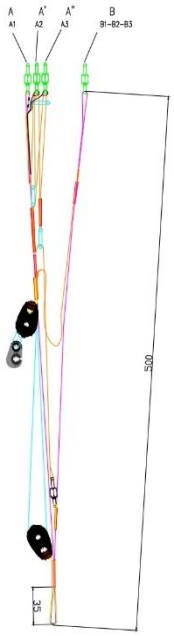
Main brake line with diff color than A,B,C main line? Yes

		A			B			C			D			E			Stab			Brake			+strap
		Manu [2]	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Manu	Sample	Diff	Sample
Center	1	7726	7726	0	7694	7694	0	7676	7676	0	7738	7738	0							7906	7906	0	
	2	7611	7611	0	7579	7579	0	7559	7559	0	7626	7626	0							7729	7729	0	
	3	7556	7556	0	7527	7527	0	7523	7523	0	7593	7593	0							7625	7625	0	
	4	7603	7603	0	7577	7577	0	7577	7577	0	7643	7643	0							7618	7618	0	
	5	7509	7509	0	7487	7487	0	7491	7491	0										7480	7480	0	
	6	7364	7364	0	7343	7343	0	7341	7341	0										7303	7303	0	
	7	7252	7252	0	7237	7237	0	7245	7245	0										7215	7215	0	
	8	7238	7238	0	7224	7224	0	7245	7245	0										7246	7246	0	
	9	6995	6995	0	6979	6979	0	7014	7014	0										7107	7107	0	
	10	6954	6954	0				6968	6968	0										6987	6987	0	
	11	6866	6866	0				6873	6873	0										6933	6933	0	
	12	6855	6855	0				6861	6861	0										6953	6953	0	
	13	6814	6814	0				6816	6816	0										7177	7177	0	
Wing tip	14	6839	6839	0				6830	6830	0													
	15	6765	6765	0				6784	6784	0													
	16	6784	6784	0				6843	6843	0													
	17																						
	18																						

Stab line to riser: A'

Number Cell: 111
Weight of the glider [kg]: 5.44

Tolerance [mm] */: ±15



Riser measurement - total length (inner edge) [mm] [3]

Total length (incl. Carabiner or connect)

Risers	Std	Acc	Trim
A	540	434	n/a
A'	536	483	n/a
B	530	524	n/a
C			n/a
D			n/a
Acc	100	*[mm]	
Trimmer	n/a	[mm]	

Total length (no carabiner or connect)

Risers	Std	Acc
A	513	407
A'	509	456
B	503	497
C		
D		
Acc	100	*[mm]
Trimmer	n/a	[mm]

No. of risers 2
Tolerance [mm] 5

Carabiner [mm] 27
Tolerance [mm] 2

*Travel range (distance between A and rear riser)

Acc system configuration max travel

Another trim configuration No
If yes (description):

Test Atmosphere AGL

Pressure [hPa]	973.5
Humidity [%]	68
Temperature [°C]	21.5

Plausibility check :

[mm]	500	500
[mm]	10000	10003

Remark:

The validation of this test report is given by the signature of the test manager on the Acknowlegement of conformity

FLOW PARAGLIDERS — SPECTRA 2

Suspension line calculation

Inspection certification number:		**CCC_026.2021**		[kg]	[daN]
Manufacturer name:	05.10.2021	**Flow Paragliders**	Maximum weight:	**95**	**93.1**
Model name and size:		**Spectra2 XS**			
Report valid for the other sizes of model:		**n/a**			

Line specification and line breaking strength after bending in [daN] (strongest to weakest value) (1)

	Manufacturer	Type no.	Breaking strength [daN]
1	Edelrid	8000U-360	286.1
2	Edelrid	8000U-190	165.1
3	Edelrid	8000U-130	87.4
4	Edelrid	8000U-090	85
5	Edelrid	8000U-070	56.7
6	Edelrid	8000U-050	52
7	Edelrid	8000U-025	22.4
8	Liros	PPSL-160	131.1
9			
10			
11			
12			

Line breaking strength, theoretical calculation (see details on the following pages) (3)

		[daN]	[g]
Sum A+B+C+D+ Stabilo lines	Level 1	2397.20	25.75
	Level 2	2195.40	23.58
	Level 3	2938.40	31.56
	Level 4	4695.20	50.43
	Level 5	5215.20	56.02

A, B and C, the sum of each level must be equal or exceed 2300daN or 23g

Result **POSITIVE**

Place of inspection: **Villeneuve**
Date of issue: **06.10.2021**
Inspector: **Andrea Wigger**

Air Turquoise SA has thoroughly tested the sample of paraglider mentioned above and certifies its conformity with the standards **FAI Cat. 1 Cross-Country - CIVL Competition Class (CCC) / EN 926-1:2015**
The validation of this test report is given by the signature of the test manager on the Acknowlegement of conformity

Detailed line strength calculation by level

	Level 1			Level 2			Level 3					
	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]
1	Amain	8000U-360	286.1	AI	8000U-190	165.1	A1	8000U-130	87.4			
2	Amain2	8000U-360	286.1	AII	8000U-190	165.1	A2	8000U-130	87.4			
3	Amain3	8000U-190	165.1	AIII	8000U-190	165.1	A3	8000U-130	87.4			
4	Cmain1	8000U-190	165.1	AIV	8000U-130	87.4	A4	8000U-130	87.4			
5	Cmain2	8000U-190	165.1	AVX	8000U-130	87.4	A5	8000U-090	85			
6	stabilo	PPSL-160	131.1	AVI	8000U-050	52	A6	8000U-090	85			
7				CI	8000U-130	87.4	A7	8000U-090	85			
8				CII	8000U-130	87.4	A8	8000U-090	85			
9				C5	8000U-070	56.7	AV	8000U-130	87.4			
10				C6	8000U-070	56.7	A11	8000U-050	52			
11				Cmain3	8000U-130	87.4	A12	8000U-025	22.4			
12							A13	8000U-025	22.4			
13							C1	8000U-090	85			
14							C2	8000U-070	56.7			
15							C3	8000U-070	56.7			
16							C4	8000U-090	85			
17							c5	8000U-050	52			
18							c6	8000U-050	52			
19							c7	8000U-050	52			
20							c8	8000U-050	52			
21							CIII	8000U-050	52			
22							C9	8000U-050	52			
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
		Total Level 1	2397.2		**Total Level 2**	2195.4					**Total Level 3**	2938.4

	Level 4						Level 5					
	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]	Name	Type no.	Breaking strength [daN]
1	a1	8000U-090	85	d1	8000U-025	22.4	a1	8000U-090	85	c4	8000U-090	85
2	a2	8000U-090	85	d2	8000U-025	22.4	a2	8000U-090	85	c5	8000U-050	52
3	a3	8000U-090	85	d3	8000U-025	22.4	a3	8000U-090	85	c6	8000U-050	52
4	a4	8000U-090	85	d4	8000U-025	22.4	a4	8000U-090	85	c7	8000U-050	52
5	a5	8000U-090	85	C7	8000U-050	52	a5	8000U-090	85	c8	8000U-050	52
6	a6	8000U-090	85	C8	8000U-050	52	a6	8000U-090	85	c9	8000U-050	52
7	a7	8000U-070	56.7	c13	8000U-050	52	a7	8000U-070	56.7	c10	8000U-050	52
8	a8	8000U-070	56.7	c14	8000U-050	52	a8	8000U-070	56.7	c11	8000U-050	52
9	ab1	8000U-090	85				a9	8000U-050	52	c12	8000U-050	52
10	ab2	8000U-090	85				a10	8000U-050	52	c13	8000U-050	52
11	ab3	8000U-090	85				a11	8000U-050	52	c14	8000U-050	52
12	ab4	8000U-090	85				a12	8000U-050	52	c15	8000U-025	22.4
13	ab5	8000U-090	85				a13	8000U-050	52	c16	8000U-025	22.4
14	ab6	8000U-050	52				a14	8000U-050	52	d1	8000U-025	22.4
15	ab7	8000U-050	52				a15	8000U-025	22.4	d2	8000U-025	22.4
16	ab8	8000U-050	52				a16	8000U-025	22.4	d3	8000U-025	22.4
17	A9	8000U-050	52				ab1	8000U-090	85	d4	8000U-025	22.4
18	A10	8000U-050	52				ab2	8000U-090	85			
19	a13	8000U-050	52				ab3	8000U-090	85			
20	a14	8000U-050	52				ab4	8000U-090	85			
21	a15	8000U-025	22.4				ab5	8000U-090	85			
22	a16	8000U-025	22.4				ab6	8000U-050	52			
23	c15	8000U-025	22.4				ab7	8000U-050	52			
24	c16	8000U-025	22.4				ab8	8000U-050	52			
25	c1	8000U-090	85				ab9	8000U-050	52			
26	c2	8000U-090	85				c1	8000U-090	85			
27	c3	8000U-090	85				c2	8000U-090	85			
28	c4	8000U-090	85				c3	8000U-090	85			
29	c5	8000U-050	52									
30	c6	8000U-050	52									
31	c7	8000U-050	52									
32	c8	8000U-050	52									
					Total Level 4	4695.2					**Total Level 5**	5215.2