

DAVINCI
GLIDERS

POPERA

REV. 2

1 NOV 2024

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Congratulations!

Thank you for choosing the POPERA.

Davinci has developed an impressive and advanced competition glider The POPERA! Proudly to say it create a great rivalry to its rival in the market!

Design and Competition Focus:

POPERA is positioned as a top-level competition glider, which is designed for serious competition flying. It belongs to the 'D' category, designed with a high level of performance and speed hence high skilled pilot with active input needed to fly the POPERA. The aspect ratio close to 7.0 indicates a sleek and aerodynamic design, contributing to enhanced performance, penetration and amazing glide!

Innovative Features:

-Double Layer System (DLS): This technology is applied to increase the internal pressure of the glider where there will be another section of layer internally, which will reduce the risk of big collapses. This feature is crucial for stability and safety during flight especially during turbulence and strong condition.

-Smart Nose System: This system is used to enhance internal pressure by minimizing airflow out of the glider. This will enhance the internal pressure of the glider hence improve the shape and stability of the glider that will maximize the performance.

Competitive Edge:

Davinci is expressing confidence in POPERA's capabilities, positioning it as one of the best in the market. The assertion of serious rivalry with competitors indicates that Davinci believes POPERA has the potential to outperform other gliders in the current market!

-DAVINCI GLIDERS TEAM-

WARNING!

THIS IS NOT TRAINING MANUAL. ATTEMPTING TO FLY THIS OR ANY OTHER PARAGLIDER WITHOUT PROPER INSTRUCTION FROM A CERTIFIED PROFESSIONAL INSTRUCTOR IS EXTREMELY DANGEROUS TO YOURSELF AND BYSTANDERS.

DAVINCI GLIDERS are carefully manufactured and inspected at the factory. Please use the glider only as described in this manual.

Do not make any modifications to the glider.

As with any sport – without taking the necessary safety precautions, paragliding can be dangerous.

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1. Technical DATA

POPERA			XS	S	M	L
CELLS	NUMBER		84	84	84	84
	CLOSED		12	12	12	12
FLAT	AREA	m ²	21.1	22.4	24.2	26.5
	SPAN	m	12.2	12.5	13.0	13.6
	ASPECT RATIO		7.0	7.0	7.0	7.0
PROJECTED	AREA	m ²	18.3	19.4	21.0	23.0
	SPAN	m	10.0	10.3	10.8	11.3
	ASPECT RATIO		5.51	5.51	5.51	5.51
FLATTENING		%	13.2	13.2	13.2	13.2
CORD	MAX	m	2.15	2.22	2.30	2.41
	MIN	m	0.50	0.52	0.54	0.57
LINES	HEIGHT	m	7.3	7.5	7.8	8.2
	MAIN		3/3			
RISERS	NUMBER	3	A,A'/B			
	TRIMS		No	No	No	No
	ACCELERATOR	mm	165	165	165	165
WEIGHT RANGE	MIN-MAX	KG	75 - 95	85 - 105	95 - 115	105-125
OPT. WEIGHT RANGE	MIN-MAX	KG	80 - 90	90 - 100	100 - 110	110-120
CERTIFICATION	EN-926-1/2 LTF	KG	EN-D	EN-D	EN-D	EN-D
GLIDER WEIGHT		KG	5.0	5.5	5.8	6.2

2. Materials DATA

CANOPY		FABRIC CODE	SUPPLIER
UPPER SURFACE		MJ 40MF MJ 32MF	Myeongjin TEX
BOTTOM SURFACE		E3H	PORCHER INDUSTRIES
PROFILES	Supported	9000 E29	PORCHER INDUSTRIES Myeongjin TEX
	Unsupported	MJ 32 HF	
DIAGONALS		MJ 32 HF	PORCHER INDUSTRIES
LEADING EDGE REINFORCEMENT		2.5/1.8 Plastic pipe	

SUSPENSION LINES		FABRIC CODE	SUPPLIER
UPPER CASCADES		8000U-130/90/70/50	EDELRID
		9200-30	
MIDDLE CASCADES		8000U-190/130/90/70/50	EDELRID
		9200-30	
MAIN		8000U-360/190/130/50	EDELRID
		DSL 140	LIROS

RISERS		FABRIC CODE	SUPPLIER
MATERIAL		12MM Zero stretch polyester webbing	GUTH&WOLF GMBH
PULLEYS		Ronstan ball bearing	Ronstan

3. Introduction and Pilot Target

The POPERA is the result of a dedicated effort of Davinci R&D team. A totally new and innovative design that has never been seen before, you can experience high stability, handling, and effective/maximum lift force in thermal, as well as glide ratio.

The POPERA was born to realize the desire of the pilot to fly faster, higher and farther. Based on the 2liner system, POPERA is the best glider with minimum air resistance and best glide ratio from CFD optimized analysis.

You can make a new records with your POPERA.

-LTF and EN certification

The POPERA is certified during official testing as LTF /EN-D.
The glider has been type-tested for "one-seated" use only.

-Suitability for expert pilots

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

-For the POPERA, it has minimum of 50cm symmetrical travel length at maximum total-load.

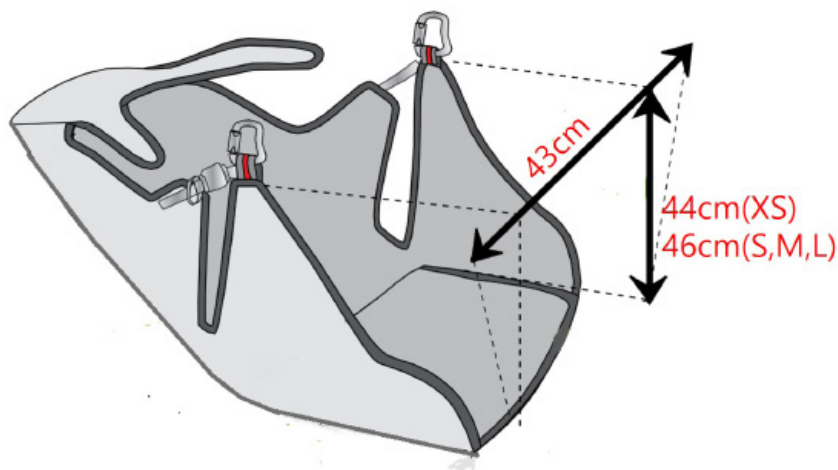
It would be dangerous to use the brake travel according to those numbers, because it is not practicable to measure the brake travel during flight, and in turbulences the stall might occur with less brake travel. If you want to use the whole brake travel of your glider safely, it is necessary to do many intended spins and full stalls to get a feeling for the stall behaviour.

4. Harness

The POPERA is certified for harnesses in Group GH(without rigid cross-bracing).

The suspensiion points of the chosen harness should ideally have a caraviner distance of approximately 43cm and a height of 44cm for S size, 46cm for M, ML, L sizes.

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.



5. Risers

The POPERA has been designed with 2 risers system. 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 easily. They also feature ergonomic wooden handles for efficient B-riser control. The Difference of riser length should be no more than ± 5 mm. The POPERA has no trimmer.

	Standard (without biner) [mm]	Trim opened [mm]	Travel length [mm]
A1	475	310	165
A2	475	390	85



6. Lines

They come in different diameters of Kevlar and Dyneema lines. They must to be inspected every 100 hours or 12 months maximum.

In case of Brake lines, it was cut a little longer, so every pilot can adjust it according to his personal taste.

But you must always leave 10cm before the brakes line starts acting in order to avoid trailing edge deformation when the wing is fully accelerated. In case the brake handle comes loose during flight or any brake lines is cut you can use the B riser softly for directional control instead of brake line.

7. Accelerator system

POPERA is equipped with a accelerator system.

The profile of POPERA 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.

The use of the accerlerator system reduces the angle of attack and the canopy may be more sensitive to collapses therefore do not use near the ground or in turbulent air and in case you are hit by turbulence remove your feet off the speed bar as quickly as possible. Always far away from the ground when using the speed bar. We therefore do not advise to use the speed bar near the ground.

You have to adjust the harness to the speed system so you can use all the speed travel.

To do so you have to be seated in the ground meanwhile you are in your harness and adjust the lines by pulling up the risers with tension. Another person help to do this is recommended. Make sure also that the speed bar is not pulling down the risers when you are not using it. Once all the gear is rigged you have to test the whole speed travel in calm air.

8. Pre-flight check

To know yourself with the glider it is a good idea to perform practice inflations and ground handling in advance. You should have no difficulties flying the POPERA for the first time in suitable conditions, but as with all new equipment.

When you have the new glider, the below points should be inspected.

- Check the lines are clear and not twisted.
- Connection points between the glider and harness.
- Check that the brake handles are correctly attached and that each line runs freely through the pulley.
- All harness buckles are closed.
- The Karabiners are fully closed and not damaged.
- The sewing, condition of the lines and connection of the lines are right
- Internal damage to ribs and diagonal ribs.
- Damage to the top and bottom panels and seams between panels.

9. Take-Off

To get the right wing shape for the take-off, pull the brake until the canopy shows at the perfect banana shape on the flat ground. While inflating the POPERA, you should hold both of the A risers on your hands. Smoothly and gradually inflate the wing with stretched.

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 stay 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.

9.1 Tow launch

The POPERA was designed as a foot launchable solo paraglider only. The POPERA 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.

10. In flight characteristics

POPERA has the best stable glide performance in a normal position with no any brakes.

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.

Alternative Steering : In the unlikely event, that a brake line releases from the brake handle, or breaks, or the brake-lines are tangled up, the glider is manoeuvrable using the B riser(rear-risers). By pulling gently on the rear-risers, it is possible to steer the glider and land safely. Don't pull the rear-risers too much, to avoid a deep stall.

11. Deflations

In spite of the POPERA has great stability of the flight, strong turbulence or piloting error may cause a portion of the wing suddenly to be a deflation. it is a EN-D 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.

11.1 Asymmetric collapse

Asymmetric collapse 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 incidence. If the collapse does happen, the POPERA 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.

11.2 Frontal collapse

The profile of the POPERA 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.

11.3 Full stall

Full stall can occur when you fully pull the both brakes enough long time. This means that the wing loses its forward momentum. Also 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.

To recover to the normal flight you must release both brakes. After this usually comes a front dive with a possible front deflation. An asymmetric recovery (one control released faster than the other) from a full-stall can cause a big dynamic collapse. The full-stall is a hazardous manoeuvre and as such outside the scope of this manual. You should practice and learn this manoeuvre only on a SIV course under professional instructor.

11.4 Deep stall

It is possible for gliders to enter a state of deep stall. This can be caused by several situations including; flying the glider when wet; very old glider; or after a front/symmetric deflation.

When you meet this situation you should fully raise up the both brakes and push the A-risers forwards or use the speed bar symmetrically to regain normal flight.

11.5 Asymmetrical stall

It can take place when you pull one of the brakes too hard, or while spiraling at a small speed in turbulence you increase the angle of attack. Rotation in the asymmetrical stall is called negative spiral. This is one of the most dangerous flying situations. In order to get out of asymmetrical stall, just release the brakes. There may follow side thrust forward with a following wing collapse.

11.6 B stall

Traditional B-line stalls are not possible with 2 liners glider like POPERA. Pulling the B lines firmly will result in a full stall. Do not do it.

11.7 Cravat

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.

12. Descent Techniques

12.1 Big ears

Sink rate can be decreased in a controlled way by folding both wing tips. While holding the brakes you should symmetrically pull the B-main-3. When you try big ears, 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.

In order to return to the normal flight, you should release the A-risers and pull the brake short times until wing tips regain pressure.

Spiraling is not permitted with big ears, because of the increased load on the remaining lines so that they can be physically deformed.

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.

12.2 Spiral dive

The POPERA 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 will increase progressively as well as the pressure on the brake and the centrifugal force that is perceived. The angle or the speed of rotation can be decreased or increased by releasing or pulling the brake by several length step by step. 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: A deep spiral is no harmless manoeuvre. The kinetic energy obtained must be reduced by slow releasing of the inside brake.

13. Landing

We recommend to land with trimmers to the normal slow position. Don't use the sharp turns or radical maneuvers. The POPERA is a high speed glider, any action on the brakes may cause significant reactions.

When you are 1-2m over the ground, you should face into wind and standing upright and ready to run. Finally you may pull the brakes smoothly for minimize vertical speed.

Don't hit the ground by your overtake the glider.

If you in windy condition, as soon as you touch the ground you have to turn around to face the glider and move towards it during full pulling break symmetrically.

14. SIV and Collapse lines

The POPERA 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 folding line is mounted on a separate folding line attachment point of POPERA, and each folding length is separately indicated in the manual.

Be sure to attach to both sides of the canopy for symmetric deflations. Davinci Gliders 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.

15. Packing your POPERA

Spread the POPERA completely out on the ground. Separate the lines to the each side. The POPERA must be folded cell to cell to keep the plastic reinforcement at the leading edge lie flat on each other and don't get bent. Try to pack your POPERA as loosely as the rucksack allows, because every fold weakens the fabric.

Avoid packing the glider where it is wet or abrasive conditions(sand, asphalt pavement, concrete).

We recommend when you don't use the POPERA for a long time, store POPERA lay on the flat table or bottom without any bending plastics.

Always use the protective bag to avoid direct contact with the harnesses and buckles of any friction between the blade and the rucksack.

16. Maintenance and cleaning

Cleaning should be carried out with only pure water. If the glider comes in contact with salt water, clean thoroughly with fresh water. Do not use solvents of any kind, as this may remove the protective coatings and destroy the fabric.

17. Caring tips

- Do not expose your glider to the sun any longer than necessary
- Keep it away from water and other liquids
- Do not let the front edge hit the ground
- Keep your glider away from fire
- Do not put anything heavy on your glider, do not pack it in a rucksack too tightly.
- Regularly inspect the canopy, lines, risers and harness. If you find any defects, contact your dealer or the manufacturer. Do not attempt to repair the paraglider by yourselves.
- If you detect a damaged line, inform the dealer or manufacturer about the line number according to the line plan
- Keep your POPERA in a bag in a dry well-ventilated place under neutral temperature and humidity conditions
- If you do not use the glider, then once a month you should unpack it, ventilate it well, and then pack it back in the bag

18. Warrantee

The producer guarantees the correctness of the declared characteristics and the paraglider's normal performance for two years after the purchase date. The producer conducts special, and after warranty repairs and maintenance at the owners' request for an extra price.

We recommend to inspect your paraglider (including checking suspension line strength, line geometry, riser geometry and permeability of the canopy material) one time at two years, or every 100 hours of flying time (whichever comes first); Those inspection must be made by manufacturer, importer, distributor, dealer or other authorised persons. The checking must be proven by a stamp on the certification sticker on the glider as well in the manual book.

There are not necessary spare items except the rubber ring to fix the main lines on the riser triangle carabiner. The rubber rings will be offered by us in the repair kit offering with the glider. You can exchange it by yourself when it has been disappeared or wears off. After you exchange the rubber ring, you must check again the triangle carabiner on the riser has been locked well before you fly.

19. Respecting nature and environment

Finally, we would ask each pilot to take care of nature and our environment. Respect nature and the environment at all times but most particularly at take-off and landing places. Respect others and paraglider in harmony with nature.

Do not leave marked tracks and do not leave rubbish behind. Do not make unnecessary noise and respect sensitive biological areas.

The materials used on a paraglider should be recycled. Please send old Davinci gliders back to us Davinci Gliders offices. We will undertake to recycle the glider.

Checked line sheet(with riser)

The measured values at the lower surface of the tailing edge, cll depth and spacing of the articulation points were determined under tensile load of 50N.

XS

	A	B	C	D	Brake
1	7328	6806	7333	7465	7654
2	7236	6712	7223	7363	7470
3	7221	6697	7202	7340	7341
4	7256	6732	7242	7371	7350
5	7217	6694	7199	7344	7241
6	7131	6610	7118	7260	7113
7	7096	6577	7090	7222	7091
8	7122	6604	7129	7241	7150
9	7038		7062		7042
10	6996		7019		7007
11	6945		6965		7003
12	6939		6956		7157
13	6900		6909		
14	6878		6885		
15	6874		6876		
16	6892		6894		
17	6730		6764		
18	6703		6741		
19	6701		6721		

e1	1455	E1	1200
e2	1395	E2	1200
e3	1396	E3	1200
e4	1439	E4	1200
e5	1187	E5	700
e6	1110	E6	600
e7	1078	E7	550
e8	1107	E8	550
e9	446		
e10	398	EI	4193
e11	435	EII	4337
e12	426	EIII	1200
e13	425	EIV	1178
e14	396		

Folding line length

Checked line sheet(with riser)

The measured values at the lower surface of the tailing edge, cll depth and spacing of the articulation points were determined under tensile load of 50N.

The length difference is not more than ± 10 mm.

S size

	A	B	C	D	Brake
1	7540	7522	7562	7698	7814
2	7445	7425	7450	7593	7626
3	7431	7411	7430	7572	7494
4	7467	7448	7472	7605	7504
5	7427	7410	7428	7577	7391
6	7339	7323	7345	7491	7261
7	7302	7287	7315	7450	7237
8	7329	7316	7356	7471	7298
9	7235		7255		7187
10	7192		7211		7151
11	7139		7155		7149
12	7133		7146		7307
13	7092		7100		
14	7069		7077		
15	7065		7068		
16	7084		7085		
17	6917		6935		
18	6889		6912		
19	6886		6907		

e1	1535	E1	1200
e2	1474	E2	1200
e3	1475	E3	1200
e4	1520	E4	1200
e5	1260	E5	700
e6	1180	E6	600
e7	1148	E7	550
e8	1177	E8	550
e9	517		
e10	468	EI	4335
e11	503	EII	4486
e12	492	EIII	1200
e13	490	EIV	1178
e14	461		

Folding line length

Checked line sheet(with riser)

The measured values at the lower surface of the tailing edge, cll depth and spacing of the articulation points were determined under tensile load of 50N.

M size

	A	B	C	D	Brake
1	7843	7824	7846	7986	8146
2	7746	7725	7731	7878	7953
3	7731	7710	7710	7856	7817
4	7768	7749	7754	7890	7828
5	7729	7710	7709	7863	7677
6	7638	7621	7624	7774	7543
7	7600	7584	7594	7733	7519
8	7627	7613	7636	7754	7582
9	7520		7520		7381
10	7476		7475		7343
11	7420		7416		7341
12	7414		7407		7505
13	7371		7360		
14	7347		7336		
15	7343		7326		
16	7362		7344		
17	7187		7207		
18	7158		7182		
19	7155		7178		

e1	1642	E1	1200
e2	1578	E2	1200
e3	1580	E3	1200
e4	1627	E4	1200
e5	1357	E5	700
e6	1273	E6	600
e7	1240	E7	550
e8	1270	E8	550
e9	612		
e10	561	EI	4675
e11	594	EII	4630
e12	580	EIII	1200
e13	577	EIV	1200
e14	547		

Folding line length

Checked line sheet(with riser)

The measured values at the lower surface of the tailing edge, cll depth and spacing of the articulation points were determined under tensile load of 50N.

L size

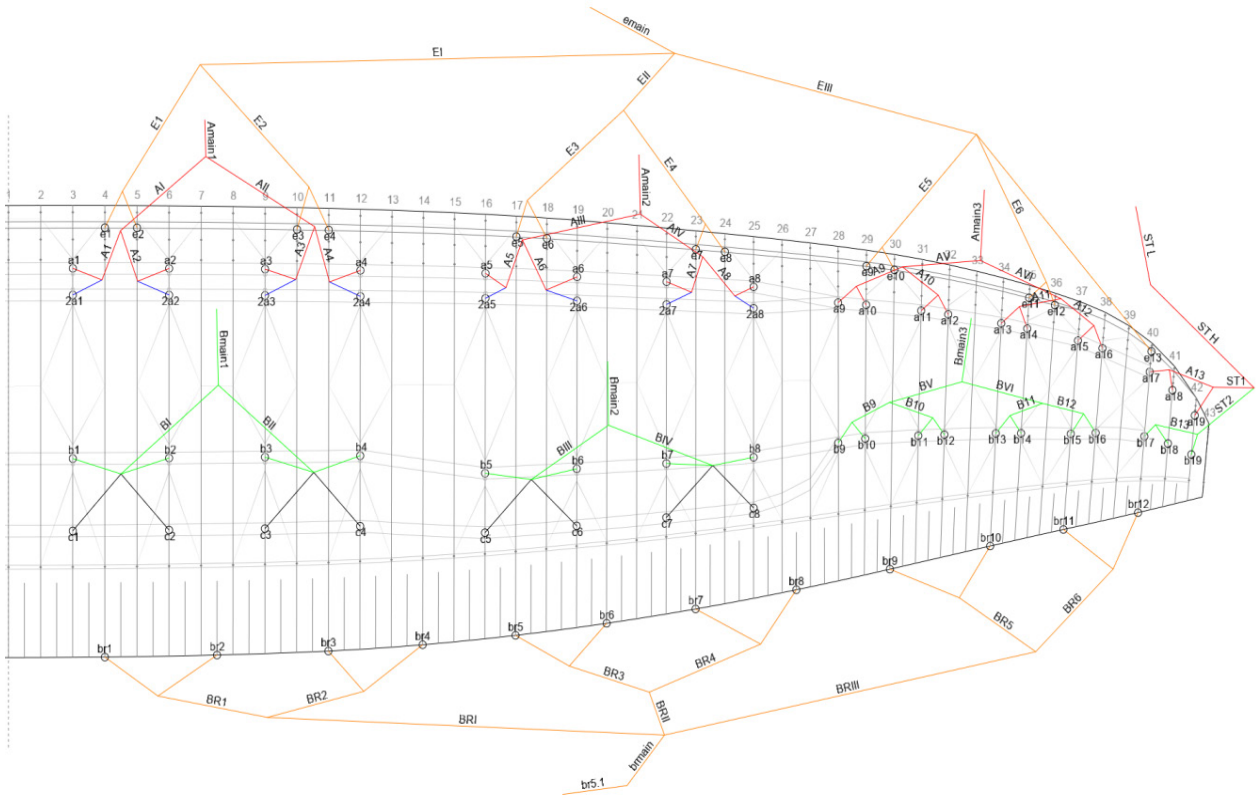
	A	B	C	D	Brake
1	8208	8188	8221	8336	8509
2	8107	8085	8101	8224	8309
3	8092	8070	8080	8202	8168
4	8132	8112	8127	8238	8180
5	8091	8071	8082	8210	8059
6	7996	7979	7993	8118	7920
7	7958	7942	7962	8081	7896
8	7987	7972	8006	8104	7962
9	7880		7896		7844
10	7834		7849		7804
11	7776		7787		7803
12	7769		7777		7975
13	7725		7728		
14	7700		7702		
15	7695		7692		
16	7715		7711		
17	7535		7556		
18	7504		7530		
19	7501		7525		

e1	1774	E1	1200
e2	1708	E2	1200
e3	1710	E3	1200
e4	1761	E4	1200
e5	1477	E5	700
e6	1389	E6	600
e7	1354	E7	550
e8	1385	E8	550
e9	730		
e10	677	EI	4759
e11	706	EII	4930
e12	691	EIII	1200
e13	685	EIV	1178
e14	654		

Folding line length

Name	Line type	Name	Line type	Name	Line type	Name	Line type
a1	8000U-090	2a1	8000U-090	b1	8000U-090	br1	8000U-050
a2	8000U-090	2a2	8000U-090	b2	8000U-090	br2	8000U-050
a3	8000U-090	2a3	8000U-090	b3	8000U-090	br3	8000U-050
a4	8000U-090	2a4	8000U-090	b4	8000U-090	br4	8000U-050
a5	8000U-070	2a5	8000U-090	b5	8000U-070	br5	8000U-050
a6	8000U-070	2a6	8000U-050	b6	8000U-070	br6	8000U-050
a7	8000U-070	2a7	8000U-050	b7	8000U-070	br7	8000U-050
a8	8000U-070	2a8	8000U-050	b8	8000U-070	br8	8000U-050
a9	8000U-050			b9	8000U-050	br9	8000U-050
a10	8000U-050			b10	8000U-050	br10	8000U-050
a11	8000U-050			b11	8000U-050	br11	8000U-050
a12	8000U-050			b12	8000U-050	br12	8000U-050
a13	8000U-050			b13	8000U-050		
a14	8000U-050			b14	8000U-050	BR1	8000U-070
a15	8000U-050			b15	8000U-050	BR2	8000U-070
a16	8000U-050			b16	8000U-050	BR3	8000U-070
a17	8000U-050			b17	8000U-050	BR4	8000U-070
a18	8000U-050			b18	8000U-050	BR5	8000U-070
a19	8000U-050			b19	8000U-050	BR6	8000U-070
A1	8000U-130			B9	8000U-070	BRI	8000U-090
A2	8000U-130			B10	8000U-070	BRII	8000U-090
A3	8000U-090			B11	8000U-070	BRIII	8000U-090
A4	8000U-090			B12	8000U-070		
A5	8000U-130			B13	8000U-070	br main	8000U-130
A6	8000U-090					br5.1	TNL180
A7	8000U-090	AI	8000U-190	BI	8000U-130		
A8	8000U-090	AII	8000U-190	BII	8000U-130		
A9	8000U-070	AIII	8000U-190	BIII	8000U-090		
A10	8000U-070	AIV	8000U-130	BIV	8000U-070		
A11	8000U-070	AV	8000U-090	BV	8000U-090		
A12	8000U-070	AVI	8000U-090	BVI	8000U-070		
A13	8000U-070	ST1	8000U-090	ST2	8000U-130		
ST H	8000U-090	Amain1	8000U-360	Bmain1	8000U-190		
ST L	DSL 70	Amain2	8000U-360	Bmain2	8000U-190		
		Amain3	8000U-190	Bmain3	8000U-130		

Line Plan



Overall view

