

SWING SERAC RS

Until now, light gliders have had a rather ‘stepmotherly’ appearance at the German manufacturer Swing. This is now set to change with the brand new Serac RS. And that’s despite the fact that the Serac RS also has Swing’s own RAST system on board ...

Test pilot: Norbert Aprissnig
Photos: Hermann Erber

The tuning is a perfect „hit“: The Serac RS shines with balanced, pleasant flight behaviour in the basic intermediate range



The suffix RS tells the tale: The Landsberieder company does not want to abandon the bulkhead used by Swing on all its models, even though every gram counts in this area. And it’s not that much extra weight that is added by the RAST. „Between 150 and 200 grams,“ design engineer Alessio Casolla tells me. In addition, RAST is used not only because of the safety benefits, but also because of the more pleasant flight behaviour in turbulence, he continues. In addition, a lot has been learned in the last two years working on the Sphera RS two-liner and the Mirage RS mini-wing - especially in terms of sail tensions, aerodynamic alignments, line suspension positions and line angles. The Serac RS was not developed as an ultra-light, specialist mountain glider, but as an all-rounder: light, compact and very comfortable to fly. The five sizes weigh exactly between three and four kilograms (depending on size), and three colour combinations are offered as options. We were able to test the Serac RS in size SM, which is approved for a take-off weight range of 75-100 kg. However, Swing only recommends it up to an upper takeoff weight of 95 kg.

CONSTRUCTION, MATERIALS AND DESIGN

Anyone familiar with Swing history will think they can recognise similarities to the Swing Arcus RS and its derivative, the Swing Arcus RS Lite. According to Alessio Casolla, however, this refers only to basic parameters such as aspect ratio and number of cells. Everything else has been changed or completely redesigned. The profile has been adjusted, as has the layout, the

latter primarily to bring the outer wings further forward (less sweep). Furthermore, the profiles have been changed so that the ribs are aligned parallel to the relative airflow. In addition, the internal structure is completely new, in terms of the angles of the diagonal ribs and the shape and positions of the cross ports on the ribs. „These changes, along with completely new canopy tension ratios, have resulted in a completely new canopy,“ explains the designer. In terms of line setup, the Serac RS is a classic hybrid three-liner. The A-plane splits into an A-riser for launching and a („run-through“) A-riser for ears. The B and C planes are linked at the riser to form the B/C bridge. At the canopy, short top lines split after the main lines and intermediate gallery lines to form a fourth D-level as well. A highlight of the generally great workmanship and material selection is the use of the shape memory metal Nitinol in the nose profile. In the Serac RS, the Nitinol wire is additionally covered by a „tube cover“ to protect the material in the leading edge if, for example, the wing should fall on its nose during landing. Excellent! On the top and bottom sail, the Nitinol pulls a few centimetres in the direction of the trailing edge, further „reinforcements“ were not necessary in the Serac RS. In the trailing edge you will also find mini-ribs to increase performance. In the leading edge, a double 3D shaping is used, a shark nose was not used. In addition to the RAST system, designer Alessio Casolla gets by with only one cross strap in the D-plane, which is amazing considering the lightweight fabric used and the high tension in flight.

Speaking of fabric material: with the Techtex Sakai STA10 and STA15, Swing relies on a product from Japan with which the manufacturer already has a lot of experience. In the topsail, an additional 38 g/m² from Porcher is used. The lines are unsheathed throughout. The main lines and the lines between the galleys are made of Kevlar from Edelrid, type 8001 U. The top lines are made of Dyneema from Liros (DC60, DC100). The neatly finished riser stands out due to the B/C bridge, which is unusual for this class, which already gives an indication of its suitability for XC flights. High-quality Ronstan rollers work in the accelerator to overcome the relatively long acceleration distance, for which there is also an adjustable kick-down ball, which halves the acceleration distance from the contact of the ball with the lower roller. Despite their weight, metal shackles are not sacrificed, and a brake swivel is also used to prevent twisting of the main brake line.

START

The Swing Serac RS does not require any special layout techniques before take-off, light centre accentuation helps as always. The mix of the unsheathed lines separates very well and shows no tendency to snag. On critical launch sites (stones, branches, etc.) increased attention is of course necessary. The launch behaviour with the RAST system differs somewhat from „bulkhead-less“ gliders, and the lightweight Serac RS is no exception. The area behind the RAST fills somewhat more slowly, resulting in a gentle but safe climb behaviour.

TECHNISCHE DATEN (HERSTELLERANGABEN)					
Hersteller/Vertrieb	Swing Flugsportgeräte GmbH, An der Leiten 4, D-82290 Landsberied, info@swing.de, www.swing.de				
Produktion	P&T China				
Konstrukteur	Alessio Casolla, Maurizio Bottegai				
Testpiloten	Alessio Casolla, Maurizio Bottegai				
Größen	XS	S	SM	ML	L
Zellenanzahl	42	42	42	42	42
Startgewicht (kg)	55–80	70–90	75–100	85–110	95–115
Startgewicht empfohlen (kg)	55–70	70–85	75–95	85–105	95–115
Fläche ausgelegt (m²)	20,1	22,3	24,6	27	29
Fläche projiziert (m²)	17,5	19,4	21,4	23,5	25,2
Spannweite ausgelegt (m)	10,3	10,8	11,4	11,9	12,4
Spannweite projiziert (m)	8,4	8,9	9,3	9,6	10,1
Streckung ausgelegt	5,3	5,3	5,3	5,3	5,3
Kappengewicht (kg)	3,0	3,3	3,6	3,8	4,0
Preis inkl. Mwst. (€)	4.190,—	4.190,—	4.190,—	4.190,—	4.190,—
Gütesiegel LTF/EN/DGAC	B	B	B	B	B
Lieferumfang	Explorer 90 backpack, inner packing bag, riser bag, compression strap				



„Control“ through RAST: The bulkhead system (clearly visible in the centre of the wing) helps to shape the flight behaviour of the Serac RS ...



Nevertheless, even in this phase the directional stability is very high. In appropriate conditions (flat take-off terrain, no updraft), one can certainly increase the impulse and pull when running, since there is no danger of a noticeable overshoot at the zenith above the pilot. The following acceleration phase is short, because the Serac RS generates lift very quickly and takes off swiftly. In strong winds, the RAST system also has the advantage of effectively preventing the pilot from unexpectedly pitching up and levering out.

FLIGHT BEHAVIOUR

Right after take-off, a high „feel-good factor“ spreads due to its good damping. „High directional stability and swift trim speed“ are the first impressions I utter to my recorder during the flight. The canopy feedback via the brakes is soft, even though the control forces increase significantly after a relatively long run-up. Nevertheless, this does not seem annoying because little control travel is required in the working range to turn the Serac RS responsively. Despite the soft canopy feedback, the wing does not tend to work in itself in

turbulence, one sometimes feels only very slight lever movements over the risers. Roll as well as pitch damping are in the expected range and correspond to a typical basic intermediate.

Thermal flight

When entering a thermal, Swing’s new light glider shows no delay whatsoever and takes the updraft neutrally and immediately without tilting back. It appears soft, smooth and very well damped, its turning behaviour is preferably flat, although it can also be turned remarkably tightly without much bank, which very effectively prevents performance-reducing tipping. By means of the inner brake and corresponding weight shifting, the turning radius can be reduced very nicely and the Serac RS can also be pulled into a curve with more bank angle. The steering forces increase significantly, but the intermediate wing works quite well in this manoeuvre due to the eager acceptance of weight shift. Nevertheless, a tendency to flatten out is always noticeable. The tuning of all these parameters in the Serac RS is so harmonious that I found the overall behaviour in thermals to be very simple, pleasant and natural.

Accelerated flight

Using the foot accelerator, the Serac RS can gain a good 11 km/h in speed. A prerequisite for this is a well adjusted foot acceleration system, because the acceleration travel is relatively large at 45 centimetres. The pedal pressure on the foot accelerator can be described as medium. The directional stability increases significantly when accelerated, the canopy is very stable and shows no tendency to dent, deform or collapse, even when you cut roll on roll. Fortunately, the Serac RS also has a B/C bridge to make small directional corrections in fast flight (valley crossing!) and to increase the angle of attack in light turbulence without having to get out of the accelerator. The B/C bridge basically works without any problems, but the amount of force required is very high, because probably for weight reasons no complex linkage was built into the riser of a light glider.

Extreme flight behaviour

Besides the positive effects of the RAST in flight (compact flight feeling, adaptation of the internal pressure in the trailing edge to the flight situation), the behaviour in disturbance

CONSTRUCTION/MATERIALS	
Canopy: Topsail: Skytex 38 g/m², Techfiber STA 15 31 g/m², Techfiber STA 10 28 g/m² Lower sail: Techfiber STA 10 28 g/m² Ribs: Techtex MJ 32 Tube-protected (!) Nitinol in the profile nose, 3D-shaping, miniribs	
Lines: main lines Kevlar Edelrid 8001 U (dyed) intermediate gallery: Kevlar Edelrid 8001 U (dyed) gallery lines: Dyneema Liros DC 60 and DC 100 (dyed), all lines unsheathed	
Riser: 12mm riser, high quality Ronstan pulleys on the speed bar, kick-down ball on the speed bar (adjustable), snap button for brake line fixation, metal shackle with plastic clips for main line fixation, brake swivel	

SWING SERAC RS

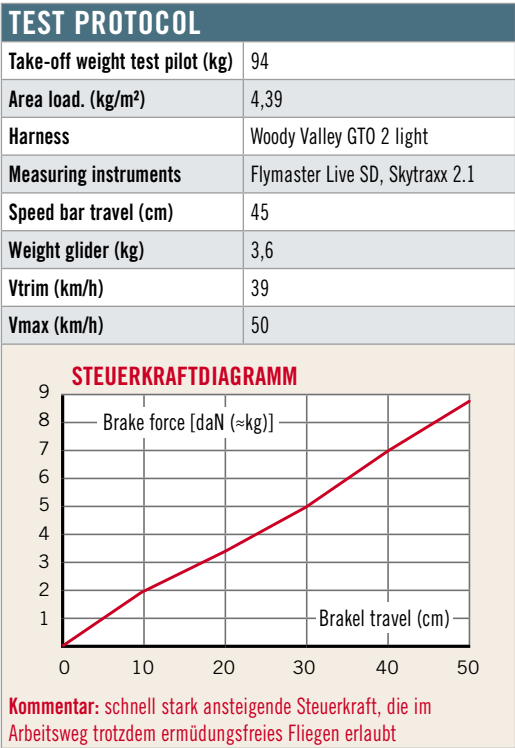
PILOT DEMAND (REQUIREMENTS FOR THE PILOT)									
E1	E2	i1	i2	S1	S2	H1	H2	CC	
E2: Entry-level gliders which, in addition to maximum safety reserves, still have sufficient handling and climbing ability for use in thermals and soaring areas. Recommended as a first glider for beginners. Required skills/experience: none, but some talent and understanding of the sport.									
PILOTS COMMENT									
Extremely well done allrounder in the light segment with low-B orientation (basic intermediate).									
What we liked: pleasant, damped flight behavior									
What's different: light glider with RAST system									
What we miss: nothing									
SUITABILITY									
Beginner				•••		XC		••	
Casual pilot				•••••		Acro			
Competition						Hike & Fly		•••••	
• (low suitability) to ••••• (high suitability)									

situations (lateral collapses, frontal collapses) is of course the great advantage of the bulkhead system. I could not notice any collapses in „free flight“ despite partly „sporty conditions“. In simulation, it is precisely these advantages that catch the eye: the Serac RS simply does not want to be „forced“ over the RAST bulkhead. That is, lateral collapses have only a very flat fold line because of the RAST, and the spinning away and the dynamics of the manoeuvre turn out to be correspondingly mild. Here, of course, the problem of certification collapses must also be seen, which must be pulled with force over the RAST in order to hit the specified measuring field. On the one hand, the practical relevance seems questionable, but on the other

hand, the pilot can be sure that he is equipped for the absolute worst case scenario. And that’s a good thing, of course. It is similar with the frontal collapse. As a rule, the frontal collapse never exceeds the position of the RAST system. An almost complete „flip“ in mega turbulence also seems pretty much out of the question with RAST.

Fun factor (dynamics & manoeuvrability)

The Serac RS is a well-damped basic intermediate. Nevertheless, it can be moved in an agile manner by overcoming the high control forces. Due to its target group, it does not develop extremely high dynamics per se. However, medium-high wingovers are possible without

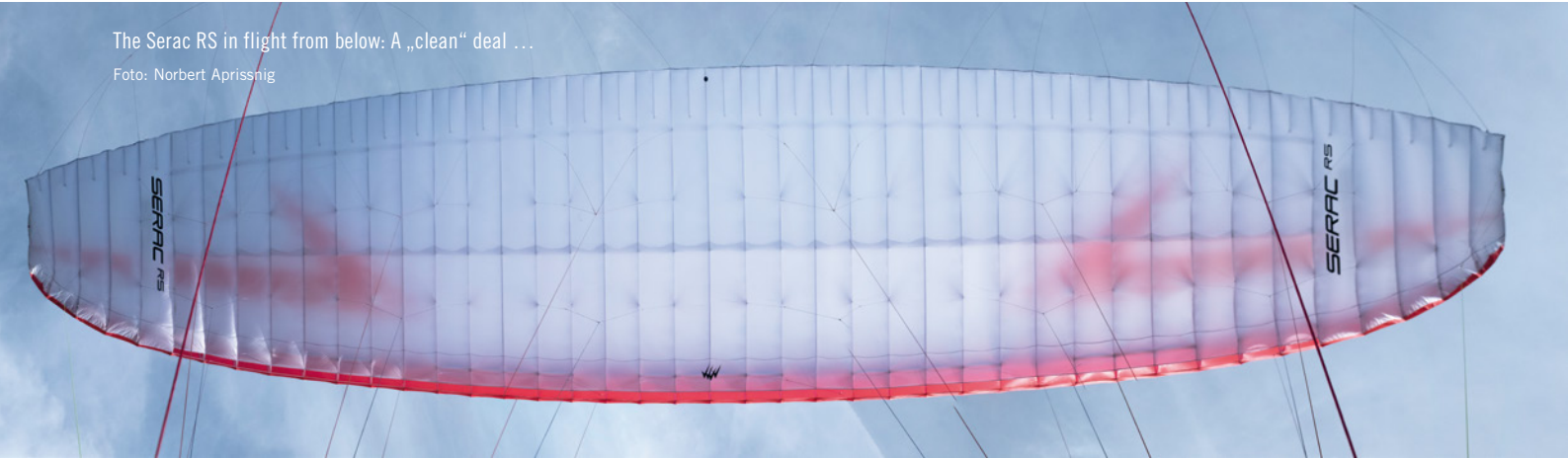


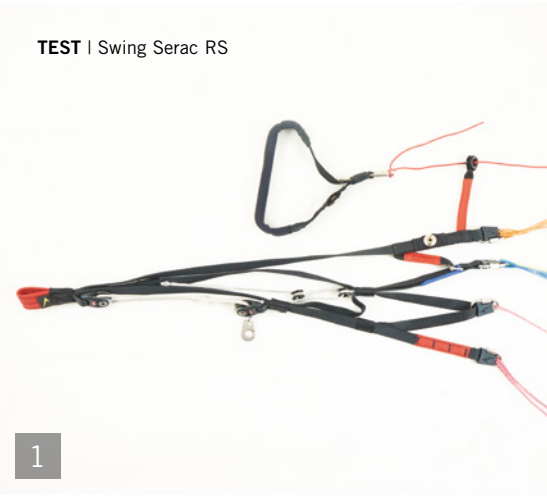
any problems. The Serac RS is definitely fun to fly!

DESCENT TECHNIQUES

Deep spiral

Despite the relatively long brake run-up and the high control force increase, the Serac RS goes into a deep spiral quite quickly with striking sink rates. In the spiral dive the wing always remains well controllable. I could not observe any spinning or even independent acceleration. By using the inside and outside brakes and weight shifting, the spiral dive is also easy to control. In addition, the righting moment is also always noticeable, whereby the intermedia-





1. Funktioneller Tragegurt mit B-/C-Bridge zwischen B- und C-Ebene
2. A-Gurt mit separatem Durchläufer (äußere A-Leine). Die neuen Leinen der Edelrid 8001U-Serie sind eingefärbt.
3. Breite Einhängeschlaufe, hochwertige Rollen und Kick-Down-Kugel
4. Die Nitinolstäbchen in der Profilnase sind zusätzlich in einem Schutzschlauch verarbeitet
5. „Halteschlaufe“ für rutschiges Terrain bei hochalpinem Einsatz am Obersegel

Detailfotos: Norbert Aprissnig



KURZBEWERTUNG		
LAUNCH CHARACTERISTICS	Forward launch ★★★★	Safe, on track and reliable. Somewhat slow climb behavior due to RAST
	Reverse launch ★★★★★	Stress-free and due to RAST without lifting tendency
	Strong wind handling ★★★★★	Very controllable and easy
FLUGVERHALTEN	Agility/maneuverability ★★★★	Good maneuverability, but not overly agile and dynamic. Just right for the target group!
	Control behavior ★★★★★	Pleasant steering behavior, very suitable for all thermal types.
	Collapse behavior ★★★★★	Very controlled and unspectacular due to RAST
	Accelerated flight ★★★★★	Class specific fast and very stable
	Damping ★★★★★	Good damping, very pleasant to fly especially in turbulent thermals
	Stability ★★★★★	Very high
ABSTIEGSHILFEN	Ears ★★★★★	Efficient and unproblematic
	B-Stall ★★★★	High effort necessary, otherwise unproblematic and safe
	Deep spiral ★★★★★	Quite rapid initiation, but very easy to control
Suitability		Talentierte Einsteiger, Gelegenheitspiloten und Rücksteiger aus allen höheren Klassen, Hike & Fly, Biwakflug und XC
Rating		★ poor, ★★ average ★★★ good, ★★★★ very good, ★★★★★ excellent



te ends the manoeuvre independently when the inner brake is released and/or the outer brake is used more. When flying into its own vortices drag, the canopy remains quite stable, although this should of course still be prevented as far as possible by executing slowly out of the spiral.

B-stall

For a B-stall, one should reach over the line lock and thus as far above the B/C bridge as possible. The effort required to initiate a B-stall is relatively high. When the flow finally breaks off and the canopy collapses in the area of the B-plane, the Serac RS descends stably and without any tendency to twist. Once the B-plane is released, the wing safely picks up speed again by shooting forward in a distinctive manner. Therefore no danger of stalling!

Ears

The outer A-plane is attached to its own continuous riser. This spreads outward in flight next to the main riser so that the outer A-line is easily accessible. By retightening, the manoeuvre can be made quite efficient, with the tips showing no tendency to flap or flutter in the process. After release, these open softly and

independently. With ears, the Serac RS remains easily controllable by means of weight shifting.

CONCLUSION

With the Serac RS, Swing has succeeded in creating a very good light allround glider. It combines simple, pleasant flight behaviour with a weight between 3 and 4 kg (depending on size) with RAST. The wing is in no way maxed out and provides great allround characteristics, which is precisely the charm of this light model. Accordingly, the range of use is wide, from Hike & Fly, to bivouac flying and XC, to a carefree and light „travel wing“. The pilot group is similar: in countries where this is legally permitted, talented beginners can certainly take off with the Serac RS. Occasional pilots, home mountain pilots and returnees from higher classes will also enjoy the Serac RS. It is also worth mentioning that the Serac RS does not appear to have been taken to the lightest limits, in terms of light glider materials and their installation (fabric reduction, cloth materials, lines and risers). Making it harder than if it had been, yet incredibly, the numbers on the scales (our test device has 3.6 kg) are extremely astonishing ... ■

