NIVIUK ROLLER REVIEW

by Carlo Borsattino on November 10th, 2016 at 12:54 pm 0 Comments
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The new Roller is the long-awaited replacement for the popular Niviuk Zion, released in 2010. At the time the Zion was heralded by many pilots and reviewers as a 'new kind of wing' which was neither a standard full-size paraglider nor a speed wing but instead something which filled the gap between the two, what we now call a 'mini wing'.

The Zion was a 4-liner (3 A, 3 B, 3 C and 2 D lines) with an aspect ratio of 4.9, fitted with trimmers and available in 15, 17 and 19 m^2 sizes, covering a recommended max total weight in flight from 91-115kg (no recommended min weights given).

The Roller is a 3-liner (2 A, 2 B, 2 C lines; approx. 33% less total line length) with an aspect ratio of 4.3, fitted with both trimmers and a speed system, available in 4 sizes: 14, 16, 18 and 20, covering a wider range of recommended flying weights (from min 60 to max 120 kg) and wind strengths. The Roller also benefits from the latest materials and technologies, which Niviuk say give it more performance (glide, sink rate, speed), an increased speed range and improved passive stability (improved stall and collapse resistance, and recovery characteristics).

FIRST FLIGHTS

I had my first chance to try out the Roller on a breezy morning at Devils Dyke. There were several hang gliders flying and a few of the 'usual suspects' gale-hanging on their paragliders; most paraglider pilots were on the ground waiting for the wind to drop, as forecast. The wind strength was around 18mph (29kph), and about twenty degrees off the slope. I flew the size 20 and was impressed at how it handled the breeze yet kept a good sink rate and performance: excellent for a mini wing. Where the paragliders were mostly 'pinned' facing into wind near the ridge, I had noticeably more freedom of movement on the Roller. First impressions of the size 20 loaded at around 92 kg (max load 120 kg) are that it's easy to manage on the ground and in the air, with impressive performance; a great first mini wing for a pilot (of the right weight) with good piloting skills.

I flew the Roller 16 at Firle on another day. At first the wind was a bit top end for full size paragliders – good for the Roller – however the wind soon eased significantly. Although many ‘full fat’ paragliders were at ridge height (struggling to climb) the Roller was still able to hang on, due to its good performance, combined with flying efficiently in areas of maximum lift close to the ridge. The extra speed and playful agility of the Roller made me smile. It’s perfect for indulging in some joyful swooping and twig-kicking. The wind dropped off some more, and the thermals improved, so it was time to put the Roller away and whip out our paragliders for a different style of flying.

A few days later the forecasts were for south-westerlies picking up to 14-16 mph on the ground, 20+ mph on the hill. I went to Mount Caburn and found some paraglider pilots on launch honing their skills in the fine art of parawaiting. I wouldn’t have pulled my standard paraglider out in that wind either. The wind was strong and rather gusty.

The Roller 16, loaded at around 92 kg all-up, was in its element: I had no problem managing it on the ground – despite some pratting around – even when I put myself in the Venturi effect right at the top of the hill. Similarly, penetrating into wind on launch, coming back in to top land, and getting the wing back down on the ground, even with the trimmers in the standard (slowest) position, didn't present any issue. If I'd attempted to fly a full size paraglider in that wind it would've most probably resulted in a good ol' para-dragging through the thistles and sloppy cow pats or getting pinned and then blown over the back into the rotor. Instead I enjoyed a couple of hours having loads of fun, and getting to know the Roller.

ON THE GROUND

The Roller's risers are a nice balance of streamlined versus practical. Not too wide as to seem draggy; not too thin as to be fiddly to handle. I found it easy to grab the riser I wanted at any time, whether launching, kiting up or across the hill, collapsing the wing or holding it down in a strong breeze.

Another nice touch is they are colour coded, red and green for left and right (see image). I think it would've also been nice if the ends of the trim tabs were colour coded in the same way. Also I prefer non-mechanical ceramic rings to pulleys for the brake line keepers, although Niviuk have used very nice, high quality pulleys (in matching green) for these.

Holding the wing down using the rear risers works well. I didn't really need to use the rear risers to hold the wing down in the wind strengths I flew in (max 22mph), and could easily do so using only the brakes, but it's useful to know this is a good option for stronger winds.

On launch I found the Roller easy to inflate, requiring only a light input from the risers, if any, combined with an appropriate pull-back with the body according to the wind conditions, to bring it up to the flying position. Purposefully abusing the brakes, symmetrically and asymmetrically, to test the wing's stall resistance and passive recovery characteristics, showed the Roller to be relatively resistant to stalling, and for it to recover and come back up to fly from relatively deep angles, which is good for both launching and kiting. If the pilot is well-versed at using the risers in combination with the controls and their body movements to better control the wing, even better.

Of course being a smaller wing and launching in stronger winds, the brake travel is a bit shorter, the stall point a bit sharper, and things tend to happen faster than they do when launching a full-size paraglider in lower wind speeds. It requires more finesse and faster reactions. If a pilot is too heavy handed, too slow to move with the wing or react with the brakes then they might find the wing shooting up and over-flying them. If they inadvertently pull on the Roller brakes asymmetrically they might find the wing more readily going off course and dragging them sideways across launch. On the other hand the resulting force from the smaller wing (less surface area, less lift) is more manageable, especially in stronger winds, and it's easier to stall it down when you want to.

For its size, I found the Roller 16m relatively easy to launch and ground handle, and quite forgiving, compared to other similar mini wings of a similar size.

IN THE AIR

Having flown 3 sizes of the Roller so far, I would describe it's handling as precise, agile and responsive. The speed, handling and overall 'feel' will vary with wing size and wing loading. In general, the smaller the wing, and the heavier the wing loading, the faster and more dynamic it will be. Comparing the 3 sizes loaded at 92 kg:

The **Roller 20** is a bit faster and more dynamic than a standard size paraglider, requiring more sensitive input and use of outer brake to keep turns flat, but relatively easy to manage; not much more demanding than a normal paraglider. In conditions that were top end for paragliders I could launch without drama, stay up with ease, I had more freedom of movement, and top landings were a breeze (no pun intended) although requiring a slightly higher and deeper approach so as to land more in to wind and so reduce ground speed. As the wind got lighter, and the lift lessened, I found I could stay up nearly as well as full size paragliders by keeping my turns flat, but it became more apparent that my sink rate wasn't quite as good, as to be expected. Even with this largest size Roller it was noticeable that, due to my increased airspeed, higher stall speed and reduced energy conversion, slope landings became trickier i.e. less forgiving of poor set up and control.

The **Roller 16** is significantly faster and more dynamic than a standard paraglider, and the handling very responsive and agile, requiring significantly quicker reactions and more precise input to keep a safe course (not hit anything) and maintain good control (not wobble about the sky like a cork in a stream). Flying close to the hill requires significantly more attention and looking further ahead since you are moving faster and so covering more distance in the same amount of time. Sink rate and airspeed increase significantly more in turns. The sharper the turn, and the less outer brake used to try and keep the wing flat, the more this effect is noticed – and the greater ground clearance therefore required!

The resulting surge of speed and loss of height could be quite thrilling – or terrifying – depending on the pilot's point of view, and their proximity to the ground! If you gain some height in the ridge lift and then fly out from the ridge (as I did many times to test glide into wind and speed) then when you turn around and fly back towards the ridge downwind the fact that you are flying a faster wing in more wind becomes very apparent as your ground speed – and so closing speed with the ridge – is much higher (+15kph or more). Beware of the Downwind Devil! Remember to keep your airspeed up and turn early to give yourself plenty of space. Top landing requires a significantly higher and deeper approach to avoid height-gobbling, speed-increasing tight turns near the ground, and ensure you land facing into wind to reduce ground speed. You can't just do the same as you would on a full-sized paraglider and expect it to work!

I flew the **Roller 18** on another day at High and Over, a smaller, more technical site, and found it's general behaviour and performance (speed) to be in the middle of the 16 and 20, as to be expected.

The three sizes of Roller I've flown feel more closely related to each other (more similar in character) than the three sizes of Zion I've flown. If the Zion 19 was a pussy cat then the Zion 17 could be a racehorse and the Zion 15 a bit of a wild Tasmanian devil. What animal would I associate with the Roller? Perhaps a seagull or a dolphin, due to its highly playful and agile nature.

TRIMMERS & SPEED SYSTEM

As with most wings with trimmers nowadays, the standard position is where they are pulled all the way down, so that the maillons are all level. This is also where the Roller is slowest, and has its best sink rate and glide angle (in still air). Since I was mostly soaring, I flew with trimmers in the standard position. I wasn't flying with an airspeed indicator, so can't say exactly how fast it was with the trimmers released, but it certainly picked up a lot of speed and the glide angle became a lot steeper.

Niviuk ROLLER trimmers: standard cam buckle with a magnetic tail to prevent flapping strap [updated risers, Dec 2016].

The Roller is unusual (for a freeflight wing) in that it has both trimmers (on the rear risers) and a speed system (on the front risers). Webbing straps connecting all 3 risers and 2 square metal rings control how the angle of attack is affected. This combination of trimmers and speed system means that you have significantly more speed range than most standard paragliders which only have a speed system, or mini or speed wings which only have trimmers. This can be very useful when the wind picks up – for flying, launching and landing. It also means you can trim the glider according to the conditions, and then use the speed system to add a bit more speed when you want. However you have to bear in mind that the more you let off the trimmers, and the more you apply the speed system, the steeper your glide angle becomes, and the more prone the wing is to getting collapses – and the more violent the resulting reactions are likely to be.

SO, HOW WINDY IS TOO WINDY?

I'm surprised to see Niviuk mentioning "… flying in strong winds up to 70 km/h" in their product description for the Roller. To put this in perspective 70 kph (43.5 mph) is officially an 8 on the Beaufort scale, also known as "Gale, fresh gale" for which the land conditions are described as: "Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded." I'm not sure I'd want to get any kind of kite out in that kind of wind. The kind of turbulence you would get could be severe!

I flew the Roller 16 (70-100kg) loaded at around 92 kg in maximum 22mph (35kph) wind, which felt fine; at times my groundspeed into wind was down to low single figures (with the trimmers in standard position). Loaded at the top of the weight range, I can't imagine flying the Roller 16 safely in more than 28mph (45 kph) but no doubt some bolder pilots might like to push the envelope beyond that. As Niviuk say "only expert pilots should consider flying in these conditions."

WHAT TYPE OF WING IS IT?

The distinction between the various types of wing can sometimes be blurred. When is a paraglider a mini wing, an acro wing, a freestyle wing, or a speed wing (and is that for speed flying or speed riding?)

Personally, I distinguish between speed wings and mini wings with the following rules of thumb. Speed wings are primarily designed for descent flights, with a steeper glide angle and higher sink rate, so are usually sub 15m2 flat surface area. Although you can soar with speed wings in certain conditions, they are not designed with this in mind and generally don't do the job well. What they do best is blasting down a mountain side at high speeds for an adrenaline-charged ride. Mini wings have a shallower glide angle and lower sink rate and are primarily designed for soaring in winds that are strong and usually have a flat surface area larger than 15m2.

Some wings are clearly speed wings, some clearly mini wings; others seem to straddle the line between the two. Looking at Niviuk wings, past and present, I think of the Zion, Skin and Roller 16, 18 and 20 as mini wings, rather than speed wings. The Skate 2 is clearly a speed wing. I've not yet flown the Roller 14 but guess that this sits on the line between the two types, and could be classified as either a large speed wing or a small mini wing (depending on your all-up flying weight).

WING SIZE, LOADING & PILOT DEMANDS

Smaller, more heavily loaded wings tend to fly faster (higher airspeed), and be more agile and more reactive to control inputs (brakes or weight shift). They also tend to have a higher sink rate and steeper glide angle, and gain more speed and lose more height in turns. The smaller the wing, and the higher the wing loading, the greater these effects tend to be. This potentially places higher demands on the pilot in terms of speed (running, reflexes and thinking), agility and precision. The pilot also needs to think and look further ahead since he will cover distance more quickly. If a paraglider pilot launches, flies and lands in the same way as he does on his normal-sized paragliding wing, he's likely to come a cropper sooner or later. In general, the faster the craft, the costlier the mistake – but the more the buzz, especially if you're a speed junkie!

SUITABLE KIT

Because of the increased landing speeds and ground contact, we recommend getting good paragliding boots with ankle protection like the Hanwag Super Fly GTX.

The Roller is best flown with a traditional ‘upright’ harness that allows your feet to dangle in the breeze, as part of the fun of this kind of wing is sliding around close to terrain, playing touch and go, and kiting up challenging slopes to do it all again.

If you want to reduce weight for peak ascents or dune soaring you could use the Niviuk Roamer harness, but this has no back protection and unless you add an external reserve container you’ll have no ‘second chance’.

I used an Advance EASINESS 2 M, a lightweight seatplateless split-leg reversible harness, fitted with airbag module with integrated reserve container and Companion SQR 100 lightweight square/round PDA reserve, total weight 3.5 kg.

I also used a heavier alternative: Sup’Air Access Back M, a standard sit-up style paragliding harness with full size seatplate, fitted with High Adventure Beamer 3 L Rogallo steerable reserve, total weight 6.3 kg.

SUMMARY

If we took the Roller 18 at the middle of weight range, then the ideal pilot would be comfortable flying an XC Class (high B) paraglider. The Roller 16 flown at the top of weight range is more suited to highly experienced pilots (comfortable within Performance Class or Advanced Class) as hinted at by the certification (Roller 16 has EN C without trimmers 70-90kg). This is due to the higher speed and dealing with turns. On the ground the Rollers are easier to manage than standard sized paragliders.

For pilots looking for a mini wing that will extend their wind range, that is a lot of fun to fly, with excellent performance but easy to handle, the Niviuk Roller is great!

More info on the Niviuk Roller

	ZION	ROLLER
Aspect ratio	4.9 m²	4.3 m²
Curvature of the canopy arc	15 %	12 %
Number of lines	244	164
Number of risers	4	3
Maximum differential between front and rear riser*	140 mm	190 mm
Trimmers	✓	✓
Speed-bar	X	✓
SLE (Structured Leading Edge)	X	✓
TNT (Titanium Technology)	X	✓
RAM (RAM Air Intake)	X	✓
3DL (3D Leading Edge)	X	✓
3DP (3D Pattern Cut Optimisation)	X	✓

ROLLER SIZES FLOWN, LOADING & WINDS

Roller 16, loaded at 86 kg and 92 kg all-up, flown in winds from 12-22mph (16-35kph).
Roller 18, loaded at 88 kg and 92 kg all-up, flown in winds from 10-20mph (16-32kph).
Roller 20, loaded at 92 kg all-up, flown in winds from 10-18mph (16-29kph).

REVIEW VIDEO