

## Advance Sigma 10 DAVID SOUTHERN REPORTS

Swiss manufacturer Advance, with its industry-wide reputation for producing excellent wings of the highest quality, needs no introduction here. I have to admit that for some time I have been looking forward to the latest iteration of the Sigma series. The original Sigma was the very first glider Advance produced, back in 1989, and one which became their flagship model for competent XC pilots.

I have flown or owned each of the Sigma series since the Sigma 6 and currently own a Sigma 9 which has proved very popular in the area where I do most of my flying. The Sigma 9 has been described as being something of a departure with more of a freestyle character than its forerunners. It is also, in terms of pilot demand, a 'low C' and quite close to its high-end B stablemate the Iota. The Iota was launched around six months after the Sigma 9 and both gliders appeal to similar pilots. Partly for this reason the Sigma 10 has been positioned as a 'mid C', and Advance's own publicity stresses that the 10 is a notch up from the 9 in terms of pilot demand. I will return to this point later.

made and discarded before the test pilot team allowed the Sigma 10 to go for certification and production.

What design features have been incorporated in the Sigma 10 and, specifically, what changes have been introduced from the Sigma 9 to take the 10 higher up the C scale?

First and foremost, the flat aspect ratio – generally a good indicator of how demanding a glider is to fly – has been stretched to 6.16 from the Sigma 9's 5.85:1. Secondly, the Sigma 10 has six more cells (now 66) and the cell openings are correspondingly smaller, with a notable shark nose. Thirdly, a great deal of work

steering is regarded by most pilots as a given for gliders in this class. Indeed the Advance team were reputedly split as to their benefit. I found them to be excellent on transitions where slight inputs are needed to maintain course. They are not however meant for radical turns!

Unlike the Sigma 9, the Sigma 10 has mini-ribs, the design team having found that performance benefited by their inclusion over prototypes without. The Sigma 10 comes in five sizes compared to the four of its predecessor. Advance say this is to allow the pilot to choose the perfect size for him/her. I flew the 29, certificated at 105 - 128kg, with a pod

All photos: Advance/Felix Wölk



### Design

Advance's product cycle is, in the main, three years. Around 12 months before a new glider is due to go to the market the design team meets to discuss the project and consider feedback from pilots on the current model. The core design team for the Sigma 10 was made up of Silas Bosco, whose first Advance project had been the Sigma 9, and Christian Proschek, whose first assignment had been the recently launched and highly praised Omikron acro wing. Into this mix was added Hannes Papesh's design software for which Advance hold a licence. The initial brief was to produce a slightly higher-end glider suitable for the traditional Sigma pilot. As always, a good number of prototypes were

has gone into creating a smoother upper surface and leading edge, reducing wrinkles by the orientation of the weave in the cloth and, internally, creating 'sliced diagonals'.

Finally there are C wires extending partway across the chord. This feature allows fewer attachment points, a consequent reduction in line length and a corresponding improvement in performance by reducing drag. Advance also found that the C wires allowed for better positioning of the C tabs and, along with two D lines, gave better collapse resistance. Each of these features incrementally improve the Sigma 10's performance.

The Sigma 10 sports C handles. This is not a feature which improves performance, especially in three-liners, however C

harness at 115kg all-up. Advance also cite an 'ideal weight range' of 110 - 125kg.

The Sigma is a mid-light glider, the five sizes ranging from 4.45kg to 5.45kg. The 29 model I flew is slightly lighter than my similar-sized Sigma 9. Porcher Skytex 32g/m<sup>2</sup> is used extensively apart from the leading edge which is the more durable 38m/m<sup>2</sup>. Advance have discontinued the ceramic rings used for brake lines and replaced them with traditional pulleys. The whole package comes with the excellent Comfortpack in a choice of sizes.

### In the air

I was offered the opportunity to test the Sigma 10 at the end of June. Flying wise it had been a miserable month in the north



## flight test: Advance Sigma 10

of England, which incidentally has endured! I was due to leave for Switzerland in a few weeks. Should I take delivery in the UK or collect the glider from Advance's base at Thun? I must have had a sixth sense. Rather than take advantage of the offer to visit Advance HQ I elected to have the glider posted to me in the UK. No sooner had it arrived than the rain clouds parted and I was out on a local hill, Parlick, on a nice thermic day.

The day was classic English thermic, with just enough wind to choose a reverse launch over forward. Given the greater aspect ratio, this would give me a chance to see how the glider came up. I wanted to see how the tips behaved. The answer was: impeccably. The wing came up effortlessly as a solid, harmonised whole. A couple of steps and I was away and straight into lift. With a big blue hole over the back it was not an XC day, but it gave me a chance to get a good initial feel for the glider. For the next hour or so I played around in front of the hill, thermalling up to base, putting in gentle spirals and testing out the bar.

It was quite apparent that the Sigma 10 was considerably different to its predecessor. The main impression I gained on that first flight, which endured throughout my testing, was just how pitch and roll stable it is. I was quite surprised at this characteristic given the aspect ratio and the anticipated higher pilot demand. The glider reacts to moving air straight away, drawing you into thermals beautifully. Where the Sigma 9 requires quite a good deal of brake input to stop it pitching too much, the Sigma 10 moves slightly and then stops obediently as soon as the slightest brake pressure is applied. The brakes on the Sigma 10 are firm but not too firm, with less travel than the Sigma 9. I found myself adapting to this very quickly and did several top landings without any hint of closeness to stall.

I was also surprised at how playful the glider is. It reacts to turn inputs and banks up quickly, perhaps reflecting Christian Proschek's contribution coming from the Omikron. Some XC machines can be quite staid, but the Sigma 10 certainly can't be given that label.

There were further opportunities to fly in successive days, but a RASP 5 forecast for the Mynd area drew me south for a day. I arrived to find a Who's Who of northern paragliding. I've flown the Mynd many times over the years and know that it can start slowly, with light thermals drifting through, yet blow out quickly. This day started in the same vein. I found a space to lay the glider out and waited. I missed a really nice cycle when almost all of the XC hounds got away. I waited. And waited. People around me started to unclip and chat.

In the near distance a red kite started wheeling around and I knew this could be one of the last chances to get away. I forward launched along with just one other pilot and the Sigma 10 bit straight into a good thermal. Fortunately, as a 'leftie' (almost everyone else I fly with thermals to

the right!) I was on my own in the thermal. The Sigma went round as if on rails with a light touch on the inside brake, steadying and controlling the turn on the outside. At base and on my own, I set off downwind.

The wind aloft was light but the thermals were quite disorganised, and I knew that if I'd been on the Sigma 9 I would have been busy constantly correcting pitch and roll. The Sigma 10 came into its own as a true XC thoroughbred. With the pitch movements informing me what the air was doing the glider was less work than its predecessor, making for a far more relaxing experience. Then the bar.



Whilst I have only flown a couple of D class gliders, I honestly cannot recall flying a glider with so much additional speed on bar. The surge is quite remarkable, and the efficiency too. With the pitch stability I found I could use the bar far more and to its fullest extent. I worked the C handles constantly on bar and found them ideal to input minor corrections in direction. Even on full bar my vario did not ring out the sink alarm. The outcome was a nice 46k flight, only terminated by one of the notorious big blue holes downwind of the Mynd.

My next flight worth reporting was some weeks later at Grand Bornand. Anyone who knows the site will attest to it having a steep take-off into the house thermal. Not a place to put your helmet down without anchoring it. The day was typically alpine and a good forward launch was needed. The launch was a non-event; the glider came up perfectly, as always throughout my testing.

This flight lasted only an hour or so and was notable only for the bad air which my flying buddies and I encountered. We accidentally got into leeside turbulence just below a ridge line and promptly elected to land. Landing options were not good: a junction of three valleys, a small town with trees all around and a valley wind that ebbed and flowed in various directions made for a tricky descent and landing. Despite the washing-machine conditions, the Sigma 10 looked after me. In the snottiest of conditions I had two small tip collapses, which I felt but did not see as they were out before I had time to look up.

## Summary

Advance's 'Epic XC' strapline says it all about this glider. Enjoyable to fly, bags of performance, fast and stable. I really cannot think of a weakness, only superlatives. I challenged Advance's Valéry Chapuis as to why their publicity carried the caveat that the Sigma 10 requires a higher level of pilot competence. Wouldn't some potential buyers be put off? Valéry explained that some testers use similes to describe gliders and pilots: 'A Porsche is a Porsche – a great car in the right hands ... but if you put a novice in one you can almost guarantee a bad ending.' This frankness from the manufacturer is to be welcomed.

How much of a step up is the Sigma 10? My feelings are that if the Sigma 9 warrants a 6 for piloting skills the Sigma 10 demands a 7. It's a glider for the true XC pilot, the typical Sigma market. In those hands some great fun and very big flights will be had. It is a truly brilliant product.

## Specification

Model	21	23	25	27	29
No of cells	66	66	66	66	66
Span (projected, m)	9.10	9.50	9.80	10.20	10.60
Area (flat, m <sup>2</sup> )	21	22.9	24.5	26.4	28.4
Aspect ratio	6.16:1	6.16:1	6.16:1	6.16:1	6.16:1
Glider weight (kg)	4.45	4.75	4.85	5.15	5.45
All - up weight range (kg)	60 - 77	70 - 88	80 - 100	92 - 114	105 - 128
Ideal weight range	65 - 75	75 - 85	85 - 97	97 - 110	110 - 125
EN/LTF certification	D	C	C	C	C
Guarantee	3 years materials and workmanship				
Price	£4,099	£4,099	£4,099	£4,099	£4,099

**UK distribution:** Available from all UK Advance dealers or go to [www.advance.ch](http://www.advance.ch). (Test glider supplied by Advance, Thun.)

