



**LOOK AT THE COLLECTION OF WINGS NEXT TIME YOU ARE ON THE HILL.** Most of the paragliders will be crisp and modern, with far better performance and handling than earlier models. Then look at the hang gliders in comparison.

You will see some pilots with the latest topless and rigid wings, but probably the majority of weekend warriors will be flying gliders from yesteryear, many of them way past their best. Rumours, Magics and early Topless gliders from La Mouette may have been good in their time, but many really deserve to be pensioned off.

Old topless gliders are the least desirable option for the average club pilot: challenging to land, stiff in roll and weighing enough to keep the UK's osteopaths busy. Often pilots on old topless gliders rig up on a light, thermic day and then don't fly to avoid having to land in nil wind.

A modern glider is much easier to land. Avian's new Puma is a case in point, much work having been done in positioning the A-frame to give light pitch forces at low speeds and using a specially-developed wing section that gives an extended flare window. The new Puma (and a select few other high-end kingposted gliders) will run rings round all these old gliders and lands easier. It will even outglide many modern topless wings up to 40+ mph. And it is light, amazingly light!

Avian say the Puma is aimed at the pilot who would like the performance of a topless glider but without a lot of the hassle and cost of a topless glider. 'In response to customer feedback,' says designer Steve Elkins, 'we set out to build a really fast performance kingpost glider that was light to carry and quick to rig, using all the technology we have proved with the Evo 3. We made a big effort to use materials as efficiently as possible too,

and have managed to save weight in just about every area.'

## Build quality

The workmanship on the latest Avian gliders is simply outstanding and truly world-class. The Puma I tested was a final prototype, yet everything fitted together perfectly. The sail is crisp, clean and exceptionally flat. Nice touches abound, such as the Velcro strap that secures the keel protection pad in place.

The A-frame and fittings are a work of art and lightweight carbon tip struts provide pitch stability. There are no luff lines, keeping drag to a minimum. The carbon wingtips are amazingly light, and touches such as the carbon keel 'stinger' just add to the build quality. The weight is also exceptional – this is the lightest seriously high-performance glider on the market.

The kingpost is canted forward very significantly, with the fore-and-aft top rigging attached halfway down the kingpost. This clever placement reduces

wire drag and is obvious from an engineering standpoint – if thinking laterally as Avian has done. It did raise some reactionary eyebrows on the hill and at the tow field and many onlookers questioned why. It is similar to the Bautek Fizz, albeit set at a much more extreme angle, and done for similar reasons. It enables a much longer range of VG travel and the best relationship between the kingpost hang point and the A-frame position for optimal for nil-wind landing – while still allowing the glider to rig flat.

My only gripe is the position of the VG cleat on all Avian gliders with the Speed frame (the glider I flew had the optional control frame from the Evo – not the lightest option but the lowest drag). It is perfect if you don't use wheels but in the wrong place if you do. Avian should either offer an inboard cleat as an option or, even better, design some wheels with a much larger boss than standard to accommodate the line of the VG cord. I only fly with wheels and so boded a fix by cutting a hole in my wheel and



Photo: Garry Hume



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## Specification

Model	Puma
Sail area (m <sup>2</sup> )	13.6
Span (m)(inc. tip fairings)	10.0
Nose angle (°)	130
Aspect ratio	7.4:1
Packed length (m)	5.4
Short-packed length (m)	4.25
% double surface	90
No. of battens	21+4
Airframe material	7075 T6 alu / carbon composite
Flying weight (kg)	28.5
Clip-in weight range (kg)*	75 - 105kg
Optimum pilot weight (kg)*	90
Certification	None**
Price	From £4,999***

**Manufacturer:** Avian Hang Gliders, Stretfield Mill, Bradwell, Sheffield S33 9JT, tel: 01433 621753, e-mail: [avian@hanggliding.co.uk](mailto:avian@hanggliding.co.uk), website: [www.avianonline.co.uk](http://www.avianonline.co.uk).

\* Assumes clothing, kit & harness at 15kg

\*\* The Puma is awaiting certification on the BHPA test rig.

\*\*\* The full range of options (Technora composite sail, carbon outer leading edges, stinger and wingtip fairings, and the Speed ultra-low-drag control frame) will bring the price to £6,999.

threading the VG cord through it after take-off and removing it again for landing.

## Flying

Due to overseas work commitments I only managed four flights before I had to return the test glider. Despite the reduced number of flights compared to a full review, I flew in a variety of conditions including very strong thermals, light, moderate and strong winds, with light wave and convergence and including a small out-and-return. The glider was also aerotowed by another pilot who stated it was just fine on tow: very stable behind the tug in otherwise very rough air (I chose not to fly as I have not towed behind a trike for a few years and did not want to fly a new glider in such difficult air, or with a wind direction that did not suit the tow field).

My first flight was in moderate winds but really strong thermals. I did find the Puma a bit of a handful at first due to the very light pitch and I had to contend with a few 'pilot-induced oscillations'. Even though I knew this characteristic before taking off, I still flew faster than ideal in the rather challenging air near the hill. I soon tuned in however and had a three-hour flight, flying way downwind and then punching back upwind, easily keeping up with topless gliders on the into-wind jumps between clouds – and outgliding some too! I would however recommend flying the Puma first in smoother, more laminar air, especially if used to a glider with heavier pitch.

The roll rate is good but not exceptional. I found it on a par with similar high-



Photo: Avian

performance gliders. I was expecting it to be quicker in roll than the Evo 140 (which is pretty good already!) but it seemed to be about the same. I was able to tightly core strong inland thermals and work weak sea thermals and convergence with ease.

On the coast I was able to outsink every other kingposted glider by quite a margin, showing the greater efficiency of a modern, crisp, laminated sail. Just push out the bar and look down on the other gliders!

*The Puma will outglide many modern topless wings up to 40+ mph. And it is light, amazingly light!*

At Ringstead the Puma easily outperformed most gliders, and after a couple of attempts the exceptional glide allowed me to jump a very large gap to the small west-south-west facing cliffs west of take-off. Later a pilot remarked, 'I've never been able to jump onto those cliffs on a flexwing. That Puma has an amazing glide – I've only ever seen rigid wings make the jump successfully.'

Landings were very straightforward with the flare point easy to judge. Unfortunately I did not have the chance to land in nil wind. My landings were in strong and moderate winds and, on one light wind occasion, with an upslope to deal with. The Puma did seem to come in a little hotter than my own glider in lighter winds, probably due to the slightly smaller sail area.

## Conclusion

The Puma is a seriously high performance glider and is most definitely not an intermediate. Before flying this or similar wings you need at least 100 hours and to be current. It is capable of winning kingpost-class comps and will annoy pilots on topless gliders when it matches or even outglides them at 25 - 40 mph (Avian say the top speed in smooth air is 60mph).

The rate of change and development with hang gliders has been less dramatic over the last 20 years compared to paragliders, but if you can afford it you deserve better and should think seriously of upgrading.

Some time ago a flying friend complained he could not follow me on cross country flights, transiting from mountain to mountain in the southern Alps. On that occasion I was flying my Bautek Fizz but the point is this: if you fly a worn-out 20-year-old glider with a decaying sail ... what do you expect?

Hang glider pilots flying older machinery – do yourselves a favour and get a test flight on one of the latest high-performance kingposted wings like the Puma. I appreciate many pilots cannot afford to buy new, but if you can the difference is not unlike what you'll find with cars from 20+ years ago versus those of today: better made, more efficient and far nicer to drive and own in just about every way.

The Puma's combination of high performance and light weight is a great solution for the average club pilot. The minimal top rigging has very little drag at speeds of up to 45 mph. Why accept the expense of fancy carbon cross-tubes when a glider like the Puma is all most pilots will ever need?



Photo: Avian