

# HIGH PERFORMANCE IN MINI DIMENSIONS



Funfex: High performance in mini dimensions

There has never been a hang glider with such a distinct anhedral as the new high performer from Thomas Finsterwalder.

High performance at the price of critical handling?

No, we were astonished: The Funfex is problem free, a simple glider to fly with an amazingly high top speed.

An article by Gerhard Steinberg

It is nothing new that for years now the Finsterwalder „kitchen“ in Munich has been building top gliders.

It is also nothing new that for more than ten years, high quality special gliders have been being built for a small group of venturesome alpinists, who like nothing better than to lug their Fex gliders up to the top of lonely summits. What is new however, is that a high performance glider has been built, that is not primarily for mountaineers, but that has been planned for the majority of pilots that are stressed by landing and handling.

In any case : things are on the boil again in the Fex kit-

chen!

Outside it's raining cats and dogs. In my thoughts I was re-living the previous flying weekend.

The midday sun even had enough power this early in the year to produce a couple of hours of usable thermals, up we go, find the core, fly over launch, top-landing... The rain drums down incessantly on the roof of the car. In front of me on the motorway, an endless river of tail-lights. The windscreen wipers were working overtime. The rain couldn't

trouble me today, because I knew, the glider is safe and dry. Not for example at home. It was lying right next to me on the passenger seat. For the first time I was underway with such a car-friendly, short-pack hang-glider.

Thomas Finsterwalder had promised me „flying fun“, and notably all-round, as he brought me the 1,95 m bundle to test. And truly: The advantages of the potential possibilities of packing his glider down so small are obvious. Not only transport

in the car, but also the glider storage at home, transport with small cable-cars which is a no-go for conventional sized gliders, air travel with the hanglider, all of these present no problem for the Funfex owners.

### Setup

Although Finsterwalder only hands over every glider to the customer after rigging instructions have been given by a school or wholesaler, I wanted to get to know the Funfex – as with every new glider – without any assistance. Only in this way can one discover possible problems, difficulties, and inadequacies (especially when setting up). Only the instruction manual should serve as legitimate assistance. To come to the point: The short packing technique of the Funfex has been so matured (in the course of over 10 years) that even a newcomer to the short-pack system has no possibility to rig up incorrectly.

The glider frame consists of only five parts, which are all colour-coded in an exemplary way. Tube dimensions that exactly fit one another ensure that mistaken tube mounting can be ruled out; and on a purely visual level, it is quite obvious which tube end belongs to the other.

All set up steps are easy. Use of force and other tricks are not necessary anywhere. Tools are not required even when replacing A-frame uprights or flying wires. Set up from the super-short pack (1,95 m) proceeds as follows: Firstly the A-frame is mounted. As in the case of Bautek gliders, here one needs only to insert the

speedbar/base tube into the bayonet fastener of the control-bar corners twist. Then the five frame components are joined together.

The next step is to pull on the sail. Insert the leading edge tubes into the easily accessible double sail. Lift the frame up by the nose plate and draw the sail up in the direction of the nose. Insert the keel tube in the flat keel pocket (integrated in the sail as the Funfex is a genuine keel-pocket-less glider), finished. The faired kingpost is slipped into the hole in the keel. Secure the kingpost hang in strap with the quick pin. Top and bottom rigging wires remain mounted on the kingpost and control-bar corners respectively, when rigging up or down, and in this way cannot be swapped.

Attaching and securing all of the rigging wires is quick and problem-free.

The attachment bolts (locking pins) are simply inserted into small holes in the keel, cross-bar, and leading edge tubes and are prevented from slipping out by means of a well considered safety mechanism.

All of these handholds can be carried out well, even when wearing gloves. What remains corresponds to rigging up a conventional glider. Sail battens into the upper and lower sail, tension the crossbar attach the nose cone with Velcro, finished.

I think it's important to put on record that from the long pack measurement (5,50 m) and the middle pack measurement (3,80 m) the Funfex is the same as any

conventional glider as far as the set up goes, and the time required.

It is only the super short pack measurement (1,95 m) that makes the Funfex different from other gliders, and with a little practise, this demands only 10 minutes extra set-up time.

Apart from the plus points already mentioned, the super short-pack possibility has the added advantage that the Funfex owner can more or less carry out a complete glider check by himself every time the glider is set up. This also explains how Finsterwalder is able to offer the required 5 year-check at a price of only 95,- Euro\*.

### Anhedral

One thing is immediately noticeable in a positive sense.

The shape of the Funfex is wilfully progressive.

At last a glider again that is not simply a copy of successful concepts for the umpteenth time. A manufacturer has really had his own ideas here, and implemented genuine innovations.

Just like Kurt Weber (Funfex short report in the Drachenflieger magazine 7/87), I asked myself the first time I saw the Funfex standing before me „have I really rigged this glide up correctly?“

The distinctive anhedral with the drooping wings actually remind one of the Starfighter.

The main advantage of the anhedral is apparently an improved lift distribution, above all when turning.

The result of the optimised lift distribution:

The Funfex can make do with minimal wingspan (9,40

m). The flight stability when turning becomes higher. Coring thermals as well as turning near to the hillside becomes thereby considerably easier, since the glider shows no tendency to side-slip.

The manufacturer states that a further advantage of the anhedral is the consequent reduction of the sail setting especially at the ends of the wings, which should make a more direct, faster and above all lighter handling possible.

### Ground handling

Minimal wing span, handy little A-frame, acceptable weight (25,5 kg inclusive glider cover) and last but not least, the relatively tight lower flying wires make the Funfex into a genuine „ground handler“.

Small pilots and most especially women will value owning a glider that they can also restrain well on the ground. Good ground handling ultimately results in more safety and also contributes considerably - in addition to the flight characteristics – to the overall untroubled fun of flight.

### Flight characteristics

The excellent ground handling is also an advantage when launching. You can experience the safe, controlled „Aerosafe-grip“ in the original with the Funfex (Finsterwalder is the inventor of the Aerosafe A-frame-upright system). The weight lies neutrally on the shoulders. The launch itself is very simple (not least of all because of the easily controlled weight).

By my first flight I had as usual, hung myself in about

\*updated price



Funfex: Characteristics are the atonically hangig wings. But this anhedral causes a short roll time. Bottom left: Self-locking quick release fasteners ease rigging. On the right: The A-frame is exceptionally far behind the pilot hang-in - thereby landing becomes easier.

22 cm above the base-bar. Due to the relatively small A-frame I found myself unusually close to the sail. The result was disadvantageous handling and poorer flight stability. By the Funfex it is recommended that the pilot hang as near to the base-bar as possible. The A-frame slopes far forward anyway. The low centre of gravity makes for more effective handling. Trim speed lies by 32-35 km/h, and shouldn't overtax even pilots with less practised. The glider lies very stable in the air over the whole speed range. Even close to stall speed the glider shows no tendency to swerve or nose-dive. To reach an excessive flight situation, one has to push the base-bar well and truly forward.

By 22-25 km/h the Funfex finally drops its nose gently in a wave-like movement and the air-flow is quickly re-summed. Also stalling in a turn proceeds softly. Only badly flown high-banked curves and wingovers result in a much stronger drive than I am used to with other gliders. A result of the anhedral? The test flights showed that this is a very fun to fly glider. The Funfex found the cores of the last gentle thermals that the Autumn has to offer almost by itself. Not oversensitive, but pleasantly direct, is how I would characterise the handling of this lively glider. Thereby flying turns, as well in calm air as in thermals, is very energy saving. Whether this is due primarily to the king-post hang-in, the reduced/minimalised washout, or the distinctive

anhedral really doesn't matter. Either way, the Funfex' handling is truly enjoyable (despite the small A-frame).

#### Performance

As regards performance, the useable performance is relevant above all for the „normal“ pilot. The potential performance in the Funfex is good. The light, unproblematic handling, makes it also relatively easily available for less practised pilots. Sink and glide distance in the normal speed range from 30-50 km/h are comparable to much heavier high performance gliders. With it's maximum speed, this light glider is even faster than some of its „Full-Race“ brothers. The speed range of the Hall anemometer was insufficient with its 80 km/h. In fact the little disc was pushed to the very top of the Hall impact pressure tube without having to exert too much energy on the speedbar. Straight line stability is very good even in this normally uninteresting speed range. Even at speeds above 80 km/h the Funfex shows hardly any tendency to yaw or swerve.

#### Landing

The landing characteristics of the Funfex should not overtax the novice pilot. King-post hang point, minimal span, and light weight, all components that clearly soften the Funfex' landing characteristics. The ground effect is moderate, mistakes on approach are relatively easily correctable. A hearty flare

and the airflow is cleanly halted.

#### Conclusion

The Funfex amazes: The combination of performance with light handling and a mini packing volume has seldom been achieved. As one normally transports the Funfex in the 5,5 metre pack volume, the additional set-up time ceases to apply. What remains is a high performance glider with all advantages, that can be stowed away in the broom cupboard at a push. It remains to be seen how the flight characteristics are under strong thermal conditions. Next spring will show whether the Funfex is also a worthy successor to the Windfex and Topfex in this respect.

#### Charcteristics

**Finsterwalder Funfex:** High-performance fun glider for advanced junior-pilots and pleasure pilots.

Surface:	16,0 m <sup>2</sup>
Span:	9,40 m
Nose angle:	120 °
Double sail:	60 %
Aspect ratio:	5,5
Battens:	18
Weight (incl. glider cover):	160 g/m <sup>2</sup> - Cloth: 25,5 kg 110 g/m <sup>2</sup> - Cloth: 22,0 kg
Measurem.:	5,50 m, 3,80 m, 1,95 m
Pilot weight:	65-100 kg
License:	DHV

**Manufacturer:**  
Finsterwalder  
Drachenflug GmbH  
Pagodenburgstr. 8  
D-81247 Munich  
Phone D-089/811 65 28