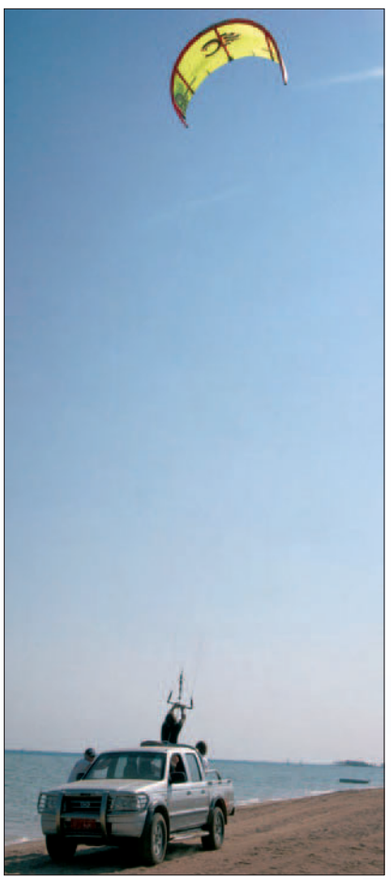
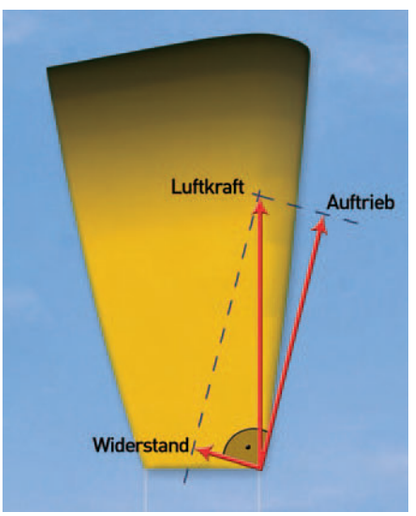
Powerpoint

Presentation



A test that up until now has never been carried out with Kites. Kite Mag used a vehicle to rig together a testing platform to measure the depower effect of Kites. We wanted to know: How high is the power of a Kite when fully powered up and completely de-powered. Included in the Test Program were an old C-Kite, a Bow Kite with Bridles and 5 lines and a Soft Kite. The Test Winner turned out to be a big surprise.

The difficulties with such a test were immediately apparent, beginning with the measured course of travel, finding a suitable transport vehicle- and then the many repetitive tests.
It all began with the subtle demands of science, "A really effective measurement procedure should be able to determine how much of the drag is created by lift and how much by resistance" challenged the aerodynamic whiz and Kite Designer Andi Hanrieder.
We always favor field-tested Physics, despite this we attached a strength measurement container capable of supporting and measuring up to 1000 Kilograms between harness- and chickenloop. The Kiter stood on the pallet of the pick-up truck, with the test Kite in the zenith. During the test run, the Kiter pushes the bar away to the limit, (De-Power) and then pulls the bar completely in towards the body (Full Power). The measurement values appear on the display of the measurement device. The vehicle drove at a constant speed of 30km/h over a distance of 500 meters, in order to simulate natural wind conditions. The actual wind conditions measured a constant six knots.



Things can become tricky however, when using this type of measurement, according to scientist Hanrieder, when two kites produce the same results (at Full Power or Full De-Power), but despite this, can have totally different characteristics. Hanrieder, "Drag is created equally by lift and resistance." For example, with the Crossbow Kite, resistance increases substantially when the Kite is de-powered to flutter. "The lift/drag ratio worsens, because the Kite hangs too low in the wind window. The remaining drag is created mainly from resistance". The Flysurfer Speed2 or also a Vegas with battens, when fully de-powered do not break down so strongly in the lift/drag ratio." The resistance does not build substantially, and the Kite remains closer to the edge of the wind window, where due to its higher lift/drag ratio, it creates less drag" according to Hanrieder, "the resistance thereby does not play such a big part as with fluttering Bow Kites."
Nevertheless, the results of the field-tested experiments verified:

1. The old C-Kite-Rhino 06 has a Full Power to De-power ratio of approxi mately 2 to 1.
2. The new Rhino 07 in contrast shows a dramatically better ratio. It doesn't have less pull however when the Pilot pushes the bar away, but when fully powered-up achieves higher performance – consequently the Power/De-Power ratio is better.
3. The FLYSURFER Speed 2 surprised us the most- it not only had the highest pull when fully powered-up, it also reduced the power in De-Power mode the most dramatically and results in an unbelievable ratio of 3,9 to 1.
4. The Cabrinha Omega produced similar values to the Rhino 07 despite scientific skepticism and made the test results plausible.
5. Our test results can give the impression that a Bow has barely more effective De-Power as a C-Kite. However, in reality, the Bow Kite crashes by De-Power. Did our test results mislead us? No - a Bow pulls - see the test results- also during the crash. But: it crashes because the remaining power is made up of resistance and not lift. Now, at last we have it in writing.

Flysurfer Speed 2

Traction force powered: 39 kg
Traction force depowered: 10 kg

Power/Depower ratio: 3,9:1

North Rhino 07

Traction force powered: 33,5 kg
Traction force depowered: 12 kg

Power/Depower ratio: 2,8:1

North Rhino 6

Traction force powered: 23 kg
Traction force depowered: 11kg

Power/Depower ratio: 2,1:1

Cabrinha Omega

Traction force powered: 32 kg
Traction force depowered: 13 kg

Power/Depower ratio: 2,5 :1