



## LINDSTRAND LIFTS-OFF IN CUMBRIA

*An evening of technology and tales at the cutting edge  
(plus coping with Richard Branson..)*

An excellent, highly amusing and informative presentation by world-famous adventurer and balloon pioneer, Per Lindstrand, has successfully launched the New Year events programme for IMechE West Cumbria.

Arriving right at the last minute, Lindstrand immediately got into his stride by declaring that he has had the most expensive airline ticket in history. Thankfully bankrolled by Richard Branson, Lindstrand outlined the series of extreme balloon endurance events that culminated in the Virgin Global attempt to circumnavigate the world in 97/98.

The successful Atlantic crossing ended in spectacular style with Lindstrand ditching into the Atlantic off Ireland whilst Branson refused and soared off only to land within easy sight of a naval vessel that was able to rescue him directly. It was only when Branson was receiving a warming cup of grog that it was realised that Lindstrand was missing, and he ended up spending 2 hours in the chilly waters before rescue. Amusingly, a tiny Irish fishing vessel claimed salvage rights, but was bought out by a useful donation from Branson.

The successful Pacific crossing sounded amazing – flying in a box pressurised by 2 industrial superchargers, the flight achieved speeds of 140mph before an extended crossing of America terminated in a remote snowbound forest with a previously unnamed lake (now known, of course, as Virgin Lake..)

This all led up to the ultimate challenge – to go round the world! Per detailed the methods used in finding, adapting, modifying or simply creating the mix of materials, components and systems needed to sustain life at 33,000 feet, supported by a helium sac that gave continuously variable lift due to heating and cooling of sunshine and night time.

Many lessons had been learnt from the preceding flights – as Per put it: “We make many mistakes, but never the same mistake twice..” But there was no chance of testing in the ultimate conditions before the event itself – flying at 33,000 feet and at minus 50 degrees Celsius for sustained periods. Thanks to Branson, Per has now developed unique test facilities for pressure and temperature at his base in Oswestry, and these facilities are now used by DuPont for testing automotive airbag performance.

The mantra was consistent and clear – test, test, test each element, each component as close to the anticipated conditions as possible. One advantage of lighter than air flight was that whilst weight is still an issue, it can be solved by increasing the size of the envelope - for Virgin global the volume was increased from 24,000 to 36,000 cubic metres. This volume was made up of almost 5 tonnes of specially prepared Kevlar material, 0.3mm thick and treated to help balance the effects of solar heating and night time heat loss. The material handling, jointing and sealing techniques described were truly fascinating. The all-up weight of Virgin Global was 16.5 tonnes and the whole programme cost in the order of £7m.

The event itself was graphically presented, from launch in Marrakech to the problems of obtaining permission to overfly certain potentially hostile countries whilst flying. The notion of Richard Branson

phoning world leaders and faxing grovelling commitments to get permissions was most entertainingly described. The unexpected path of the balloon north of the Himalayan ridge gave some breathtakingly beautiful pictures.

The voyage finally foundered because of a 'wall of weather' in mid-Pacific, together with the effects of unexpectedly high ice build-up (2 tonnes!) draining fuel reserves. Unsportingly, Lindstrand & Branson were fined on touching down in Hawaii for illegal and unlawful entry to the United States.. Branson was additionally fined for not having a valid passport..

Per concluded by musing that whilst having a celebrity multi-millionaire (complete with awesome publicity machine) helped make the whole thing happen, it certainly limited the risks that could be taken, which was not the barrier faced by the Breitling Orbiter a few months later – they succeeded and took the glory.

Per took a number of subsequent questions which were answered in detail and he rightly received a rousing reception for a wonderfully entertaining and informative evening.

Based in Oswestry, Linstrand Balloons manufactures hot air balloons and airships, and gas balloons, and also maintains and repairs gas airships. Linstrand Technologies exploits the engineering know-how accumulated from 26 years of aeronautical endeavour to provide inflatable building structures and solutions that have been certified in 48 countries, with a perfect safety record.

**ENDS.**

**FOR FURTHER DETAILS OR INFORMATION**

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**Per Lindstrand (Left) is congratulated by  
IMechE West Cumbria event organiser Tom Pritt**