FanWing

"The first horizontal-rotored lift and propulsion wing in history to sustain flight."

Tim Robinson, Aerospace International,
The Royal Aeronautical Society

FanWing's First Manned Aircraft

Development of the FanWing's unique form of cross-flow rotor propulsion has recently reached a major new turning point. Pat Peebles, US-born inventor of the heavy-lift STOL technology, and former BAE Systems Principal Concepts Engineer George Seyfang have now begun tests and design work for construction of a first manned experimental demonstrator. Peebles and Seyfang so far plan a first public flight of the newest FanWing at the Oshkosh EAA AirVenture event in 2013.

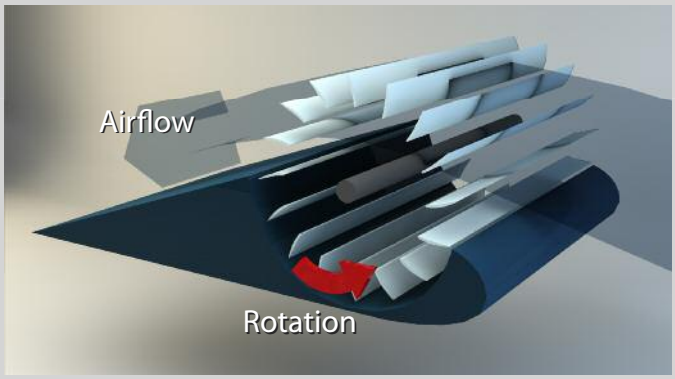
Specifications

Rotor span	32 ft / 10 m
Rotor diameter	30 in / 75 cm
Total span (including horizontal tails)	46 ft / 14 m
Empty weight	770 lb / 350 kg
MTOW	1300 lb / 600 kg
Flight speed	20 – 70 kts
Take off distance	50 ft / 15 m
Engine	Rotax 912
Glide ratio (engine out)	1:3

Project Milestones

January 2012	Finalized project requirements
February-April 2012	Wind-tunnel model construction (Italy)
May 2012	First full technical-team design sessions (UK)
June-July 2012	Final wind-tunnel tests/completed first wing-shape design
July 2012	Small-scale static model exhibit at Oshkosh
August 2012	Final design sessions (US)
August-November 2012	Flying prototype construction (US)
December 2013	Full technical team rotor testing (US)
January 2013	Taxi tests and 1st hop (US)
February–July 2013	Flight tests (US)
July 2013	Oshkosh: First public flight demonstration
Project Duration	18 months
Location	US, UK, Italy

How it Works



The aircraft has a cross-flow fan along the leading edge of each wing.

The fan, powered by a conventional engine, pulls the air in at the front accelerating it over the trailing edge of the wing. By transferring the work of the engine to the rotor, which spans the whole wing, the FanWing accelerates a large volume of air and achieves almost instant take-off and stable flight.

Advantages

- Very short take-off and landing capability with potential VTOL
- Efficient fuel consumption
- Simple, economical construction, controls, maintenance
- Stability and resistance to turbulence
- No stall
- Quiet operation

"Recent aerodynamic developments of the FanWing aircraft configuration have increased the economic cruise speed considerably. A conceptual and costed comparison of four different aircraft and rotorcraft configurations has shown that, with these developments, the FanWing concept could now offer an interesting and unique capability, with short-field performance close to that of helicopters and tilt-rotor aircraft, but with operating economies close to that of conventional aircraft."

George Seyfang, "Recent Developments of the FanWing Aircraft" CEAS/ 21st AIDAA Congress, Venice, October 2011.

"Peebles has hit on that rare thing: a new way of flying."

Newsweek

FanWing Development

FanWing Aircraft Technology An Overview

The FanWing Limited Company was incorporated in 1999 in London. Support has been provided by private shareholders, public grant sources and by a range of advisors including Ray Kingcombe, UK Government BIS Unit Head of Technology in Aerospace Marine & Defence; Alan Bond, Reaction Engines, and the late Sir Arthur C. Clarke. The Company currently has a specialized commercial/investment advisory team based in London and the US and agents in four countries.

Technical background

In 2000 Pat Peebles' Rome-based development and first proof-of-concept flights attracted the attention of Professor JMR Graham at Imperial College, London. Graham borrowed a model wing for his students and subsequent dissertations provided early academic support and credibility for the new invention. Funded by a first UK government grant and early investment Peebles separately undertook independent wind-tunnel tests. His scaled prototypes all exhibited unusually short take-off and heavy-lift and he experimented with a patented vertical take-off modification until it became apparent that the aircraft with already established short take-off was itself commercially viable.

Recent developments

In 2010 former BAE Systems Principal Concepts Engineer George Seyfang - previously responsible for technical flight assessment of major aircraft developments including the Typhoon, Harrier and Concorde - suggested to Peebles a twin-tail 'OHS' modification. Peebles' and Seyfang's subsequent informal collaboration involving intensive wind-tunnel tests resulted in significant improvements in speed, stability and efficiency. The developments together with George Seyfang's own independent and published assessment and predictions in 2011 of the aircraft's potential, have led to a significant new level of technical credibility and international interest.

FanWing Aircraft Technology An Overview

Awards and grants

Pat Peebles and his FanWing Company have received awards including SMART UK Government Grants, a London Development Agency Connect Award and the Saatchi and Saatchi Second Prize International 'Edward de Bono Award' for 'World Changing Innovations'. Peebles has received personal award nominations by the Royal Aeronautical Society and the World Technology Network Organisation.

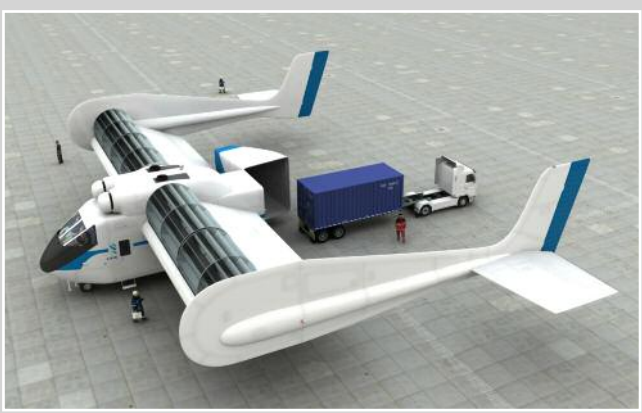
Public Relations

Media coverage has included the BBC, Discovery Channel (UK and Canada), the UK Sunday Times, Popular Mechanics (US and Russia), The Independent (UK), Newsweek, Focus, Flight Magazine, the Royal Aeronautical Society's Aerospace International, AOPA online, Reader's Digest UK and AIR International.

Commercial goals

The FanWing presents *"an economical multi-role utility aircraft of extreme capability"* (AIR International, February 2012). Unmanned applications include crop dusting and unmanned surveillance for security and firewatch. The experimental manned Light Sports Aircraft Project represents the next milestone towards the company's eventual and main goal of a STOL short-haul heavy-lifter for aid and local freight/commuter transport.

FanWing Development



FanWing

FanWing Demonstrator Project - The Team

Patrick Peebles, Director

US-born inventor and technical director of the FanWing project, Pat is self-educated in physics and aeronautics and previously specialised in electronic inventions. He was for some years international area manager for a US-based company before making a full-time commitment to FanWing.

Dikla Peebles, Director

Dikla, British, a writer and former teacher, founded the FanWing Company in 1999. Educated at York and Cambridge Universities and with a background of event and project management in both technology and the arts, she is director of PR and principal fundraiser.

George Seyfang

Formerly Principal Concepts Engineer at BAE Systems, George has acted as consultant engineer and led flight assessment teams for aircraft including the Concorde, Typhoon, Harrier, Nimrod and Tornado.

Richard Jenkins

Director of the world-speed record breaking Greenbird wind-powered car project, Richard has designed, built and tested four separate speed record craft on land, ice and water. He now devotes himself full-time to his new San Francisco based company and traveling worldwide in pursuit of perfect conditions, optimal workshops & technology partners.

Francisco Agullo

Francisco has been a Captain and Flight Instructor on DC-6, DC-7, L-1049 and B757 aircraft and created the "Super Constellation Flyers Association" which operates one of the last airworthy Lockheed Super Constellations. In 2010 Francisco was the first pilot in aviation history to fly an ultra-lite (700 lbs) aircraft around the world. Today Francisco, based in Geneva, is a Boeing 757/767 Captain and Instructor with Privatair.

Andrew Thorndyke

With wide experience in development of partnerships and alliances, marketing strategy and IT, Andrew in his role as European Sales Manager for Frost and Sullivan has provided commercial support and advice for the FanWing Company since 2009.

One of the few truly new aircraft since the Wright Brothers.
Clive Thompson, New York Times "Ideas for 2004"

It looks like a lawnmower, was designed in a kitchen, but it could revolutionise aviation.
Charles Arthur, Technical Editor, The Guardian (and formerly The Independent UK)

Peebles has hit on that rare thing : a new way of flying.
Newsweek

It may be that the FanWing becomes as common as the helicopter.
Tim Robinson, News Editor, The Royal Aeronautical Society, Aerospace International

...I regard his plane as the fourth great breakthrough in aeronautical science: there was Orville and Wilbur Wright, Sikorsky's helicopter, Sidney Camm's Jump Jet - and Pat Peebles and the FanWing.
Professor David Nicholas, OBE, interviewed in Peter Popham's article on Pat Peebles and the FanWing in The Independent: A Leonardo da Vinci for the 21st Century

FanWing proves innovation is alive.
Paul Jackson, Managing Editor of Jane's, Aviation Week,

Patrick Peebles may have devised one of the most striking innovations in aircraft propulsion since Frank Whittle invented the jet engine almost sixty years ago.
Thomas Withington, specialist aerospace journalist

Many people have tried and failed - the fact remains that it works!
Professor JMR Graham, Aeronautics Department, Imperial College, London

All major revolutions lead to four classic stages of response :
- You're crazy
- You may not be crazy but it's no good for anything
- I wish I'd thought of it myself
- I thought of it myself
(And don't forget... I told Orville and I told Wilbur it would never fly.)
Fax from Sir Arthur C. Clarke

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