

# FanWing shows its mettle



▲ A FanWing gets aloft after an impressively short-distance rotation. (Photo: FanWing)

With two prototypes now constructed, FanWing, a UK UAV company, has taken a stride forward with its curious aircraft design which uses a cross-flow fan stretched along each wing to generate lift and thrust for the vehicle. The design was a hot topic of conversation when exhibited during the 2004 Farnborough Airshow, and since then, the FanWing team has been working on two different versions of its innovative distributed propulsion concept.

Test flights have been conducted in Italy of the company's short take-off and landing (STOL) airframe. It achieved an impressive short-distance rotation which FanWing inventor Pat Peebles said could be as low as three aircraft lengths when the UAV is fully loaded. Current statistics talk of the aircraft having a loiter time of up to 80 minutes carrying 4 kg of battery and payload when powered by an electric motor, or up to 12 hours when powered by a petrol engine.

Last month saw the maiden flight of the STOL prototype, which rotated at a distance of one metre while at full power and performed a similarly impressive, but slightly longer rotation when the test pilot reduced the throttle for the second flight.

One of the other key benefits of the FanWing, according to Peebles, is that the aircraft is made from composite materials – something which helps to decrease weight and may also reduce radar signature. The design of the aircraft and the placement of its blades make it impossible to stall, while affording it with significant stability.

FanWing is also working on a vectored thrust short take-off and vertical landing version of their design. The aircraft is currently undergoing reliability and safety tests, and has completed the second phase of its patent application.

There is significant interest in this design, which uses horizontal surfaces placed over the fan to vector the thrust for similarly rapid rotations and vertical landings. The aircraft's ability to hover could be a

major attraction to potential customers looking for a UAV which can combine the attributes of fixed- and rotary-wing designs, but who may not necessarily be willing or able to spend money on a more complex tiltrotor aircraft.

Moreover, the fact that the FanWing cannot stall could make it relatively easy to operate for new UAV pilots. When the aircraft lands, 'it does not go into ground effect', according to Peebles, which avoids the operator having to wrestle with a UAV which prefers to skim along the runway rather than reunite with terra firma.

The company is confident that this innovative design will be attractive and offers new capabilities to the unmanned vehicles world. 'We have proof of concept, and the technology works,' said Dikla Peebles, FanWing founding director – and it seems that the industry has woken up to what FanWing has to offer. 'We're in discussion with a number of interested parties'. But for now, further development and testing continues.

**By Tom Withington, Toulouse**

## More funding for HAUV

Last month, Bluefin Robotics announced that it had been awarded a \$161,000 contract by the US Navy to demonstrate its Hovering Autonomous Underwater Vehicle (HAUV) as an Explosive Ordnance Disposal Hull Unmanned Underwater Vehicle Localization System (EOD HULS). The overall objective of the Navy's EOD HULS programme is to detect and classify targets on the hull of ships with precise navigation.

The HAUV was originally developed in partnership with the Massachusetts Institute of

Technology. It is capable of autonomous operations for rapid and close-range hull inspection with little operator intervention. The system is equipped with a Doppler velocity log, inertial measurement unit, compass, GPS and high-resolution DIDSON imaging sonar.

Funding from the Office of Naval Research and the Navy's EOD Program Office has already allowed Bluefin to demonstrate the technology on several occasions, including HULSFest 2006 and NATO Harbour Protection Trials 2006.

**By Darren Lake, London**

## Hermes 450 gets Israeli civil certification

The Hermes 450 has become the first UAV in Israel to receive certification from the civil aviation authorities, the UAV's manufacturer, Elbit Systems, announced in May.

Despite a long history of deploying UAVs in military operations, Israel has faced similar issues to other countries when it has come to flying unmanned systems in civil airspace. To develop applicable legislation in Israel, officials set up a special committee to test UAVs and their modes of operation, and to

evaluate the manufacturers. Last month, Elbit Systems became the first company to complete all the required procedures and receive all applicable civil aviation certification approvals.

As a result, the Hermes 450 is now cleared to operate in Israel's civil airspace. The operation of UAVs under civil aviation rules will be a boon for the country, allowing much greater access and better regulation of the systems, which currently operate mainly within restricted and military airspace.

**By Darren Lake, London**