

# IHS Jane's Navy International

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## Here's looking at you

Shipborne UAVs provide eyes in the sky



- Helicopter-launched ASuW weapons
- Air defence: Standard Missile-6



problems within a laser in a ball – heat. My heat is now outside the ball.”

Joining BAE Systems, FLIR and the ONR is Raytheon, which is responsible for integrating the components, and Utah State University, responsible for airborne testing onboard a manned helicopter. The flight assessment will be conducted against groups of approximately seven small boats in a military sea range off the California coast in the July-August timeframe. “Everything we have done so far is lab testing,” said Heeke. “We are integrated into the ball. We are working with ATR algorithms and transmitting images. We don’t flight test the ball in full up mode until probably mid-October. We have been doing flight tests for vibration testing and, to date, a lot of ground based imaging at Naval Air Weapons Station China Lake, California. So we have proven we can reach out to the ranges we are expecting.”

Schiebel is also marketing its **Camcopter S-100** rotary-wing VTUAV as an ISR platform. At the end of April an **S-100** became the first UAV to fly from an Italian Navy warship, launching from and recovering to the Artiglieri (Soldati)-class frigate ITS *Bersagliere*. “The **S-100** performed flawlessly in sea states three to four and with wind speeds of up to 25 kt”, said Schiebel’s managing director, Neil Hunter. “The payload of choice was a Wescam MX-10 camera, transmitting high definition images in real-time to the control station during the 4.5 hours of flight time,” he told *IHS Jane’s*.

### Customer interest

“The order book for the **S-100** remains strong with an increasing level of interest in both the military and civilian domains and for the land and maritime domains. There are ongoing negotiations with customers from all over the world,” Hunter said.

Photographs emerged recently of a People’s Liberation Army Navy frigate – the Jiangkai II (Type 054A) vessel *Zhoushan* – launching a rotary-wing VTUAV that resembled the **Camcopter**. Hunter, however, emphasised that it was not an **S-100**. “Schiebel did not sell production licences to China, although that does not provide full protection against copies or imitations,” he said.

The **S-100** has an empty weight of 110 kg with a maximum take-off weight (including fuel) of 200 kg. The typical payload is around 50 kg. “The key point here is that 50 kg means the S-100 can simultaneously carry more than one payload at any one time. For example, it can fly with both an EO/IR and radar together,

The French Navy has trialled Schiebel’s Camcopter S-100 VTUAV from the Gowind off-shore patrol vessel *L’Adroit*.



providing a significant capability, more than most tactical UAVs can offer,” Hunter said.

While the **S-100** is equipped with state-of-the-art EO/IR sensors, optional payloads include integrated spotlights, loudspeakers, rope/net-dropping containers and even a synthetic aperture radar. “Work is also underway in the civilian domain to incorporate Riegl light detection and ranging (LIDAR) and magnetometer sensors. The different sensors are selected according to the requirements of the several customers,” he added.

The aircraft is 3.1 m long, 1.12 m tall and 1.24 m wide and has changed very little since its birth. “The only real external physical change has been to extending the length of the undercarriage to accommodate bigger payloads,” Hunter said. “Of course, different payloads/capabilities have been added and there have been continual upgrades to the software, etc., as would be expected. Some sensors, such as the Wescam MX-10, are bigger than others and therefore require a larger landing gear, which we implemented.”

The **S-100** is fully autonomous and uses redundant inertial navigation systems/GPS for navigation. Propulsion comes from a 50 hp Wankel-type (rotary piston) engine burning 100 octane-grade avgas (aviation petrol). Schiebel’s new heavy fuel engine, which was announced in March 2012, provides customers with the ability to use JP-5 (F-44), Jet A-1 (F-35) and JP-8 (F-34), Hunter said.

Dash speed is 120 kt, cruise speed

(allowing greater endurance) is 55 kt and the **S-100** can stay airborne for about six to seven hours, utilising its internal tank in International Standard Atmosphere conditions. With additional external fuel tanks, the endurance is extended to 10 hours.

A two-person flight team is required to operate the **S-100** UAS. The operator programs the flight route and monitors the flight, while the payload operator controls and monitors the sensor imagery and relays the data.

Having a VTOL platform in production since 2005 with over 140 units in the marketplace gives Schiebel a tremendous opportunity to address the changing demands of its customers, Hunter said. “Extended flight time, increased payload capability, diversity in payload options and increased service life on dynamic components are all areas we have addressed and offered improvements or options. We will continue to make improvements as the market dictates or where we see ways to make our UAS even better.”

Unlike Northrop Grumman with its Fire Scout VTUAV, Schiebel does not intend to weaponise the **S-100**. “The **Camcopter S-100** was designed and built as a platform for reconnaissance and monitoring, therefore no [weapons] tests are planned, nor will be in the future from our side. Schiebel does not offer any support for such attempts and distances itself from all possible trials concerning this capability.” ■