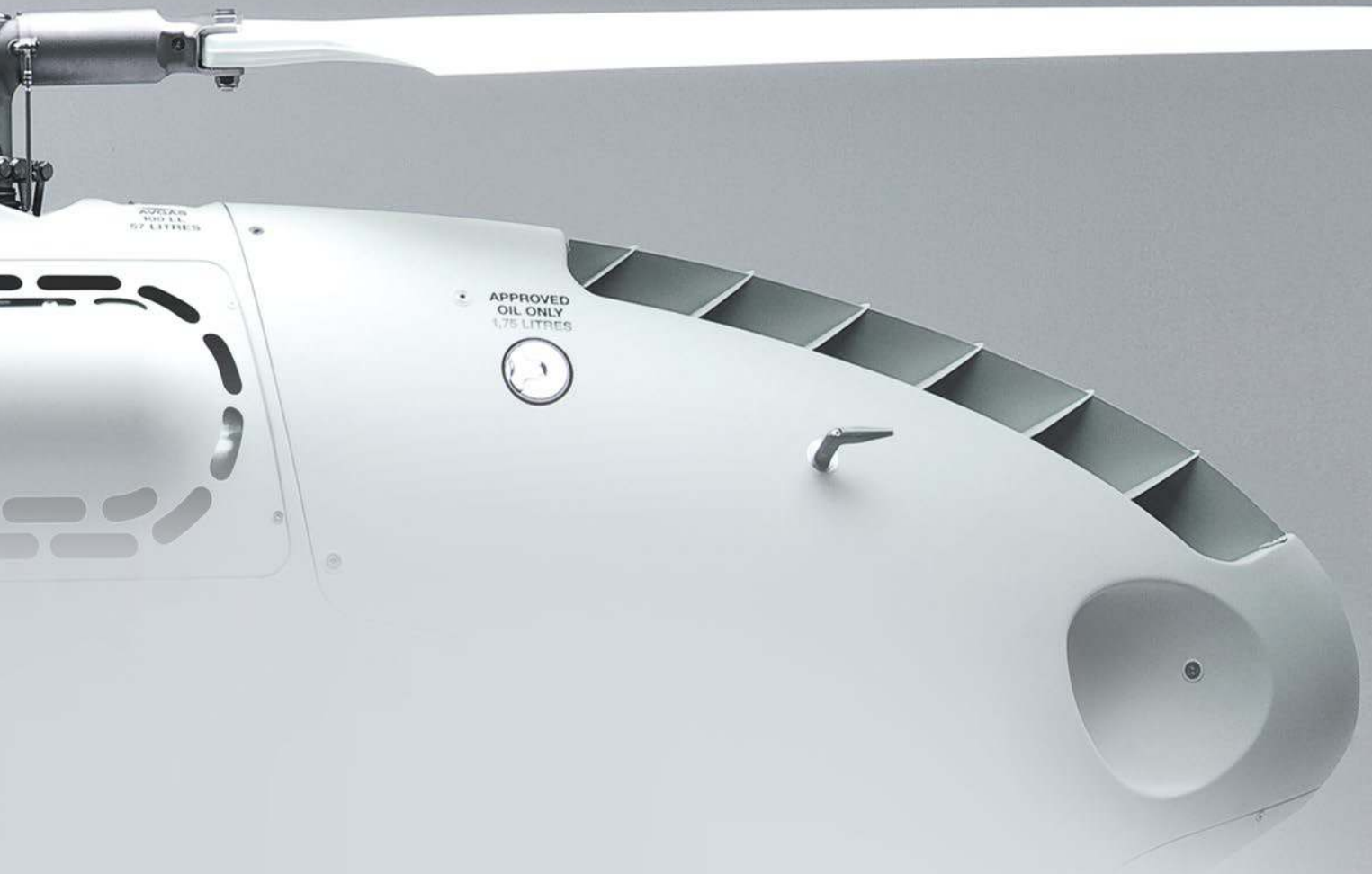


SCHIEBEL



CAMCOPTER® S-100
UNMANNED AIR SYSTEM

SCHIEBEL

Technology and Design



The site for the Wiener Neustadt facility, which lies 50 km south of Vienna, was selected for its close proximity to the public airfield and was opened in September 2006 for the exclusive production of the CAMCOPTER® S-100, Schiebel's unmanned helicopter.

first floor, which, in stark contrast, boasts a black basalt concrete façade.

At 2000 m², the production hall is a spacious, pristine, open environment, which leads out through a wide door towards the airfield to support daily flight operations and training. Situated around the hall is a training area, special workshops and a soundproof test room for engine testing and development. The company helipad grants direct access to the Schiebel test range nearby.

Exuding elegance, the Wiener Neustadt production plant is an unmistakable style statement that stands out on the horizon as a shimmering, yet imposing landmark.



This high-tech and functional, yet beautifully designed building combines a dual purpose: that of a fully equipped production facility, which is enveloped in a stunning glass exterior that mirrors the surrounding landscape – and an office wing on the

THE SMARTER ALTERNATIVE

Schiebel. A company synonymous with commitment, innovation and cutting edge technology; a company that delivers what it promises – world class products borne of over half a century of knowledge, experience and dedication.

Combining our superior level of technical expertise with inventive mastery, we ensure that the products we create perform to our customers' highest expectations. But our mission is a journey rather than an end game and our dedication to listening to and interpreting the diverse requirements of our customers means we constantly strive to perfect our products and their capabilities. It is at our state-of-the-art production facility in Wiener



Neustadt where our skilled team of experts is devoted to achieving that goal and propelling our breakthrough product – the CAMCOPTER® S-100 Unmanned Air System (UAS) – to ever greater heights.

Form and Function

UNPARALLELED PERFORMANCE

Schiebel's Unmanned Air System – the dynamic CAMCOPTER® S-100 – provides a unique balance of advanced capabilities, operational flexibility and outstanding performance. The S-100 is able to fly a programmed mission without operator intervention. It is a Vertical Takeoff and Landing (VTOL) system and, whether for use at sea or on land, it has been designed to manned aviation standards ensuring reliability on all mission types.



STRENGTH IN FORM AND FUNCTION

In-depth research and development has led to an Unmanned Air Vehicle (UAV) that is designed to perform in all terrains and environments. Its sleek design belies a tough framework, combining advanced composite materials. These provide high-end performance coupled with robust, structural strength and a high level of environmental resistance.

The S-100's airworthiness has been certified by the Austrian AustroControl GmbH (ACG) and the European Aviation Safety Agency (EASA).



INTELLIGENT OPERATIONS FROM TAKEOFF TO LANDING

For total performance flexibility, the S-100 has the ability to complete an entire mission automatically and with zero operator intervention, or it can be reprogrammed at any time when airborne to perform alternative missions or react to task changes.



Programming an autonomous mission is performed via a simple point-and-click graphical user interface, with payload imagery transmitted to the Control Station (CS) in real time. Dually redundant Inertial Navigation Systems (INS) and Global Positioning Systems (GPS) ensure high-accuracy navigation and stability. In the event of loss of control link, an automatic fly-to-home-point recovery function is activated.

COMMAND & CONTROL

The powerful multi-capable system software of the CAMCOPTER® S-100 is intuitively controlled through an operator interface. The control workstation displays the position of the UAV as well as status information in real time on a user-friendly, aviation-style instrument panel.



The payload control workstation allows the operator to control the payload while also having access to mission planning information, video-viewing, recording and frame capture. Depending on the user's needs, the S-100 can be commanded from two laptop computers or may be seamlessly integrated into a larger system.

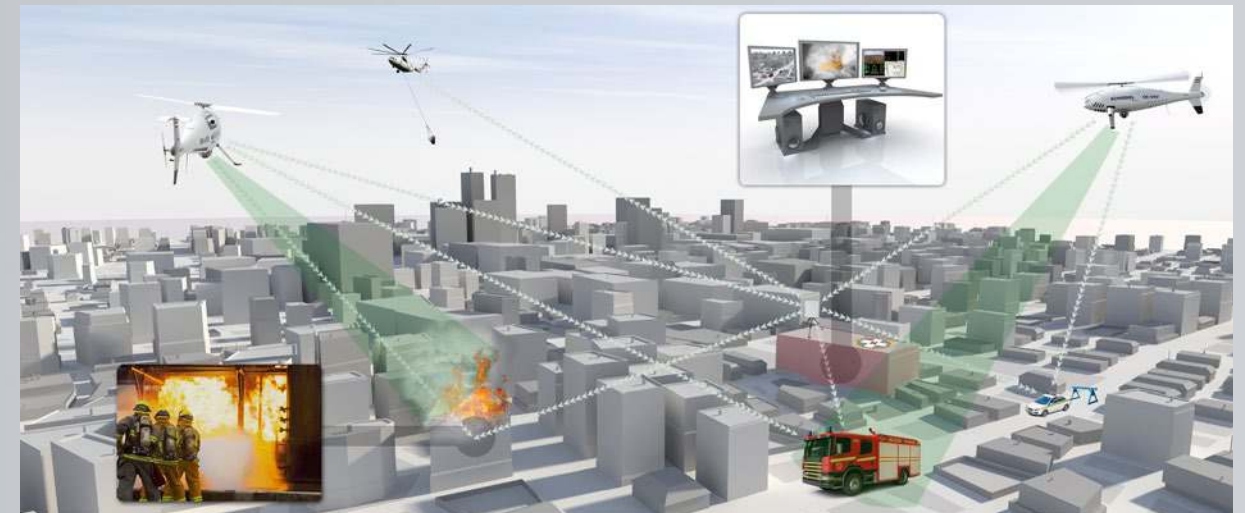


ANTENNA OPTIONS

Its highly encrypted data link provides exceptional line-of-site range with antenna options available out to 200 km.

THE CUBE

The CUBE acts as a hub between the UAV, all ground components and higher-level networks. It is entirely versatile, having been designed either for portable use or permanent installation on a vehicle or ship. Its networkability allows it to be easily expanded to cover control of multiple air vehicles from either a single shelter, a moving vehicle or from a ship's command and control center.



NETWORK-ENABLED

The ability to simply view and share the collected data is important for efficient operations, and network connectivity is key to enabling success. The CAMCOPTER® S-100 UAS provides ubiquitous information sharing – robust, secure and timely, anywhere and anytime for anyone and on anything.

The CS system is network-enabled and with its Windows™-based architecture and Ethernet, it can be easily integrated seamlessly into existing network systems passing information around the user community.



Multiple and Configurable

CAMCOPTER® S-100 VERSATILITY

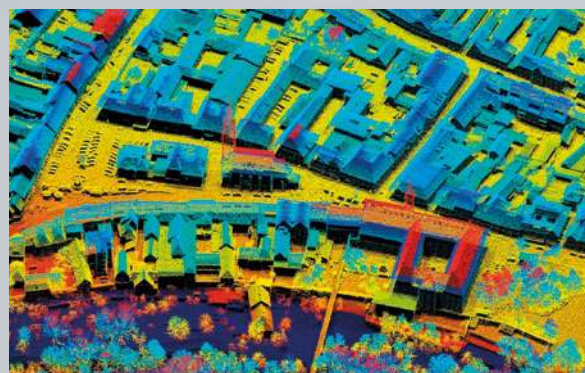
The CAMCOPTER® S-100 UAS is a system beyond comparison. It not only provides the highest level of durability needed for both sea or land operations, but as a modular system it offers the ultimate in flexibility in order to meet the needs of a wide variety of missions – and at a far more affordable cost than alternative systems. Each one of our customers is unique, and to meet diverse and individual requirements, the CAMCOPTER® S-100 has been designed to be fitted with a variety of payloads.



The S-100 features platform and payload expansion capabilities - with two payload bays, an auxiliary electronics bay, as well as two side payload hardpoints and the ability to carry under-slung loads. Its typical capacity is 50 kg.



As standard, the S-100 flies with state-of-the-art Electro-Optical / Infra-Red (EO/IR) sensors, but Synthetic Aperture Radar (SAR), Light Detection and Ranging (LIDAR) Scanners, integrated spotlights and loudspeakers are also available.



OPTIONAL PAYLOADS

- Stabilized Day and Night Electro-Optical / Infra-Red (EO/IR) Gimbals
- Synthetic Aperture Radar (SAR)
- Maritime Radar
- Ground Penetrating Radar (GPSAR)
- Signal Intelligence (SIGINT) & Communication Intelligence (COMINT)
- Light Detection and Ranging (LIDAR) Scanners
- Communications Relays
- Loudspeakers
- Transponders
- Dropping Containers
- Under-slung Loads



CAMCOPTER® S-100

Robust and Effective

PREPARED FOR SEA

Its robust design makes the CAMCOPTER® S-100 ideally suited for use in maritime operations and has been operationally proven on single-spot ships worldwide.

Its compact size and light weight means the S-100 can be easily maneuvered, stowed, and maintained in ships hangars. A typical frigate-sized hangar can store up to five S-100 alongside a conventional large manned helicopter, and successfully complements operations traditionally completed by manned helicopters.



It is fully maritized against corrosion through the extensive use of carbon fibre composite materials, stainless steel, titanium, anodization and special coatings.

With its automatic VTOL capability, it can take off and land unaffected by rain and strong winds on any ship with a helicopter deck. The S-100 is optionally equipped with a harpoon deck capture system for use with any NATO grid.

PREPARED FOR LAND



The S-100 is the master of complex terrain where no airfields or runways exist. Furthermore, as a VTOL system, it needs no prepared area or supporting launch or recovery equipment.

It has been designed and proven to operate effectively in extreme environments:

- Deserts up to +55°C
- High relative humidity zones up to 95%
- Snow-covered areas down to -40°C

It has a ceiling of up to 18000 feet in ISA conditions, when lower payload weights are acceptable and an endurance exceeding six hours with a full fuel load and a 34-kg payload as well as all mission-certified equipment. An optional tank extends the endurance to more than 10 hours.



Civil and Military

MARITIME - EXPANDING YOUR HORIZON

Nowhere does the S-100 excel more than at sea. The advantages of VTOL make it the ultimate asset for both civil and military operations.

Security

- Border and Territorial Water Patrol
- Reconnaissance of Vessels & Areas
- Anti-smuggling
- Oil Rig Inspection
- Pollution and Oil Spill Monitoring
- Ship Tracking (AIS or Maritime Radar)



Command & Control

- Task Forces
- Landing Operations
- Damage Assessment
- Search & Rescue

MILITARY - DELIVERING A TACTICAL ADVANTAGE

The multi-capable CAMCOPTER® S-100 enhances your military capability and delivers an intelligent solution for a wide range of missions.



Security

- Route Surveillance
- Signal Intelligence (SIGINT) & Communication Intelligence (COMINT)
- Border Patrol
- Counter Measures - Improvised Explosive Device (IED)
- Minefield Mapping
- Convoy Protection
- PSYOPs

Command & Control

- Early Warning
- Damage Assessment

CIVIL - YOUR PERFECT PARTNER



Whether enhancing creativity for a film maker or monitoring the security of vast pipelines, the S-100's intuitive and accessible technology makes it the perfect choice for civil users.

- Harbor & Border Patrol
- Area & Event Security
- Search & Rescue
- Out-reach Surveillance
- Mapping & Surveys
- Aerial Photography
- Support Relief in Environmental & Natural Disasters
- Airborne Communications Relay
- Agriculture

Back-up and Support

TRAINING MATTERS

Schiebel takes training seriously and delivers comprehensive courses for both operators and maintainers. These courses adhere to the principles followed by the manned aviation world and offer both classroom and hands-on practical training.



The operator course consists of modules for general aviation, CAMCOPTER® S-100 operation as well as mission planning, simulation and live flying, while the maintenance course trains individuals to be fully proficient in supporting the system in all environments and conditions. The length of training may vary, depending on the pre-qualification of each individual. Training can take place either at Schiebel's purpose-built facility in Austria or at a location of the customer's choice.

STEADFAST SUPPORT

Customers feel totally confident in Schiebel's reliable support service, with experienced and certified aviation engineers always on hand, as well as a round-the-clock help desk. The team endeavors to consistently meet and surpass customer requirements.



Schiebel aims to support as much as possible in the field or at sea, and provides depot level maintenance and overhaul support for power plants, line replaceable units, controlled items and other components that are not field-repairable. It also provides a spares management and maintenance program for servicing, repairs and preventive maintenance, as well as the inspections necessary to support the varied requirements of all customers.

Maintenance activities include:

- Preventative and corrective maintenance on all system levels
- Documentation support, including user and technical documentation
- Configuration control support, including configuration follow-up after modifications and changes/software upgrades or service bulletins
- Support for R&D projects, spiral development and the purchase of spare parts
- On-site technical support, worldwide

CERTIFICATION

Schiebel has closely followed regulations levied by both military and civilian authorities in the design, manufacture and operation of the S-100, bringing the company in line with the established best practices of the aviation industry.



This approach has brought recognition and acceptance from various military organizations and a permit to fly from EASA. In April 2007, the S-100 satisfied approved EASA flight conditions and each aircraft is issued with a Permit to Fly. This certification is on a European level, states that the S-100 system is able to perform safe flights and shall be recognized by all other national European safety agencies.

As a further sign of the authorities' confidence in the S-100, it was approved by DGAC (Direction Générale de l'Aviation Civile) to fly during the 2009, the 100th year anniversary of the Paris Air Show at Le Bourget, the first UAS ever to be permitted to fly during this historic and prestigious event.

A year later, the CAMCOPTER® S-100 was the first UAS flying at the Berlin Airshow (ILA), fully integrated into all operational flight display and airport procedures.

TECHNICAL DATA

Autonomy:	fully autonomous takeoff, waypoint navigation and landing	Endurance:	>6 hours with 34 kg (75 lbs) payload plus optional external fuel tank extending endurance to >10 hours
Navigation:	redundant INS and GPS	Typical payload:	50 kg (110 lbs)
Power plant:	50 HP rotary engine	MTO weight:	200 kg (440 lbs)
Data/video link:	fully digital, compressed video (up to four simultaneous feeds)	Empty weight:	110 kg (243 lbs)
Typical D/L range:	50, 100 or 200 km (27, 54 or 108 nm)	Max. dimensions:	3110 mm (122") length 1120 mm (44") height 1240 mm (49") width
Dash speed:	120 kn	Main rotor diameter:	3400 mm (133.9")
Cruise speed:	55 kn (for best endurance)		



CAUTION - HOT EXHAUST

SCHIEBEL

UNMANNED AIR SYSTEMS

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