SCHIEBEL

CAMCOPTER® S-100

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ABOUT SCHIEBEL

Founded in 1951 in Vienna, the globally operating Schiebel Group focuses on the development, design and production of the revolutionary CAMCOPTER® S-100 Unmanned Air System (UAS). Certified to meet AS/EN 9100 standards, Schiebel has built an international reputation for producing high-tech military, commercial and humanitarian products, which are backed by exceptional after-sales service and support. Schiebel has facilities in Vienna and Wiener Neustadt (Austria), Manassas, VA (USA), Abu Dhabi (UAE), and Shoalhaven (Australia).

Schiebel as an innovator achieved numerous world's firsts, including:

- Flying at the Paris Air Show and ILA Berlin
- Demonstration of Manned-Unmanned Teaming (MUM-T), LOI 5 (control and monitoring of the S-100 including launch and recovery)
- Cargo delivery to an offshore oil rig by a vertical lift UAS
- Light Unmanned Operator Certificate (LUC) within the European Union

Schiebel is the world leader in rotary UAS with unrivalled experience:

- Several hundred Unmanned Air Vehicles (UAV) delivered to customers on five continents
- Several hundred thousand flight hours across the fleet in all climatic conditions
- Tens of thousands of embarked maritime flight hours achieved
- Several thousand deck landings in demanding environmental conditions
- Operated from more than forty classes of ships ranging from a small patrol vessel to a helicopter carrier

EXPERTISE AND INNOVATION

HIGH-TECH DESIGN AND DEVELOPMENT

Schiebel's advanced production facility in Wiener Neustadt, Austria, combines cutting-edge technology, design and innovation. In 2020, it was doubled in size to serve the growing demand for the CAMCOPTER® S-100. The spacious, pristine production hall leads directly to the airfield where daily flight operations and training take place. Schiebel's mission is an evolving journey committed to interpreting the diverse requirements of its customers and ensures that the company constantly strives for perfection. Our expert team is highly skilled and dedicated to propelling our breakthrough S-100 to ever-greater heights.

Production facility competencies include:

- Autoclave for composite production
- 3D printer for additive manufacturing
- Electronic component assembly
- Engine and S-100 assembly
- Engine dyno capability testing (including high altitude)
- Rotor blade testing

THE SYSTEM

UNRIVALLED PERFORMANCE

The unmatched autonomous Vertical Takeoff and Landing (VTOL) S-100 is designed to manned aviation standards for use on both land and at sea, providing a unique balance of proven capability, operational flexibility and outstanding performance. The innovative composite airframe design enables the S-100 to operate as an evergreen system (the airframe has no maintenance life limit restriction). This provides flexibility to seamlessly upgrade to maintain the latest capability. A typical system setup consists of two S-100 air vehicles with multiple payloads, a ground control system with two workstations and data link – a design optimised to ensure minimal footprint and 24/7 availability.

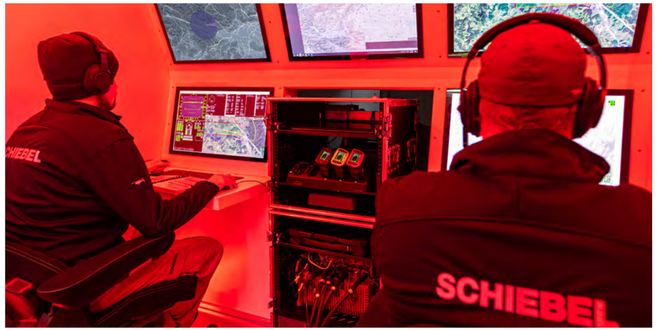
THE SYSTEM

COMMAND AND CONTROL

The robust system software has been continuously developed to be versatile, adaptable and intuitive to use. The Primary Flight Display (PFD) shows position, mission and diagnostic status information in real time, while the dedicated payload workstation permits control of multiple payloads for data viewing, recording and processing. Flexible system setup allows control of the S-100 from either ruggedised multi-screen consoles or from just two laptops. Integration with third-party infrastructures, such as Emergency Response Coordination Centres (ERCC) or Combat Management Systems (CMS) on naval vessels, is provided for dissemination of live data and remote control.

THE CUBE

The CUBE is the hub between all system components, including control stations and networks, to simplify installation, connectivity and cabling. Its design allows portable use or permanent installation on vehicles and ships.

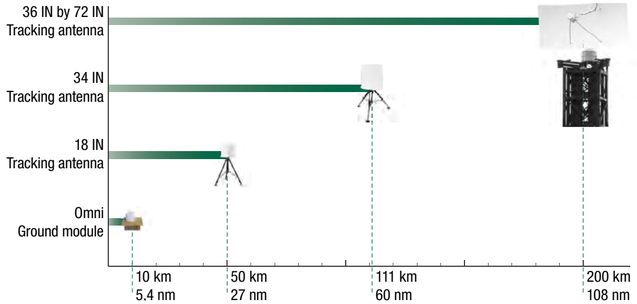


DATA LINK OPTIONS

The encrypted data link provides secure, real-time connectivity with various range options out to 200 km (108 nm). A Satellite Communication (SATCOM) module is available for operations beyond topographic line of sight.

INTEROPERABILITY

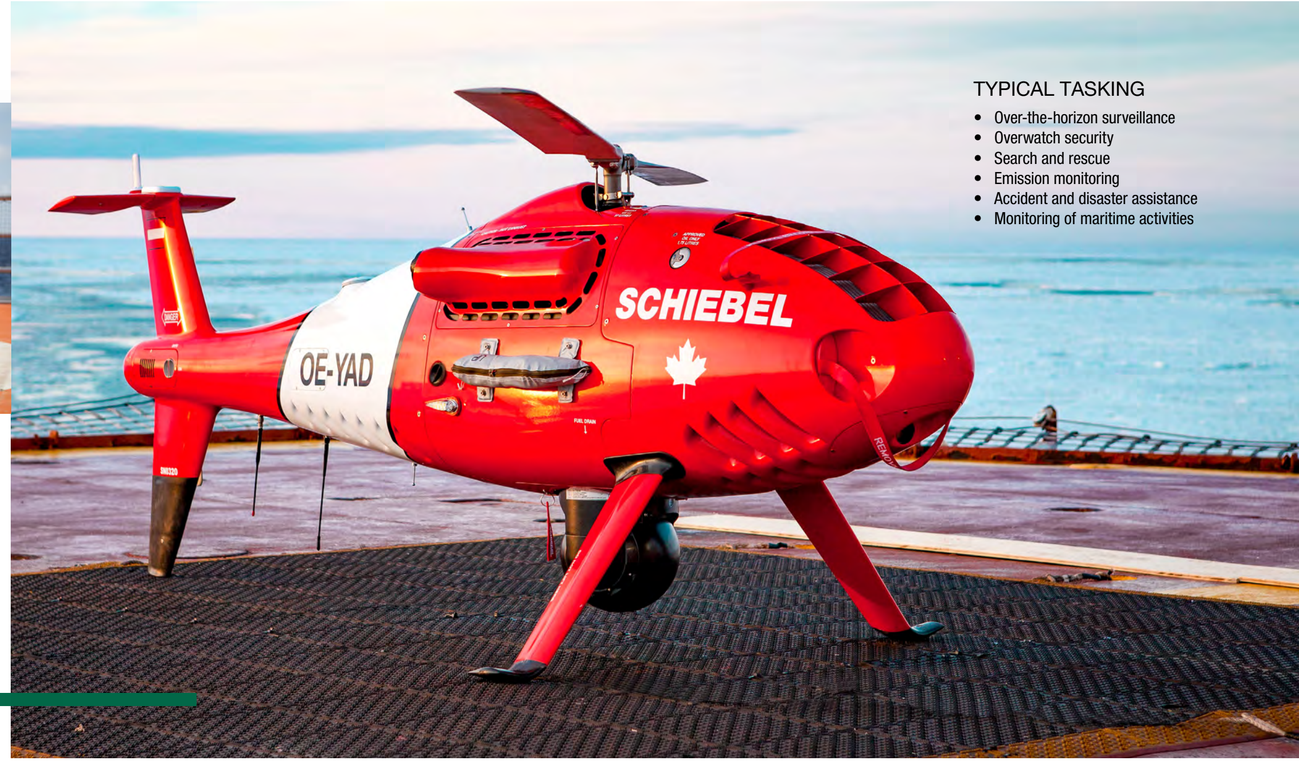
The S-100 is STANAG 4586-compatible, capable of transferring information seamlessly. The sophisticated level of interoperability allows interaction and direct control from land-based stations, vessels, land vehicles and aircraft (MUM-T).



MARITIME SURVEILLANCE

OPERATIONALLY PROVEN

The S-100 can be operated with either aviation gasoline or kerosene, also referred to as heavy fuel (including F-44/JP-5), making it ideally suited for the maritime environment. Its small footprint and the absence of launch or recovery equipment lets the S-100 be easily manoeuvred, stowed and maintained in confined spaces or in ships' hangars. Extensive use of carbon fibre composite materials, titanium, stainless steel and special coatings protect the system against corrosion. The variety of payloads for surveillance, monitoring and data gathering significantly expands the ship's overall capabilities. Operation is possible from any ship with a small helicopter landing deck or suitable clear space, even in challenging weather. The optional harpoon deck capture system is compatible with the NATO grid and facilitates missions in adverse sea conditions. The S-100 is used extensively by both civil and governmental agencies, day and night. Tasking includes over-the-horizon surveillance, overwatch security, search and rescue, emission monitoring as well as accident and disaster assistance. Globally, Navies routinely operate the S-100 for the monitoring of maritime activities, including vessel detection, fishing, smuggling and piracy.



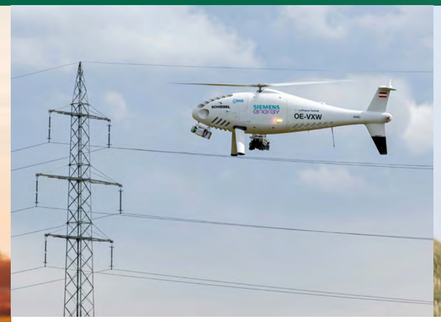
TYPICAL TASKING

- Over-the-horizon surveillance
- Overwatch security
- Search and rescue
- Emission monitoring
- Accident and disaster assistance
- Monitoring of maritime activities

LAND SURVEILLANCE

TYPICAL TASKING

- Border security
- Disaster and pollution monitoring
- Civil disruption monitoring
- Environmental change detection
- Convoy protection
- Supply line integrity
- Frontline resupply



GLOBALLY OPERATED

The system is proven to operate effectively and efficiently in extreme environments. Customers routinely employ the S-100 capability in arctic conditions down to -40°C and deserts up to +55°C, as well as in climatic zones of extreme humidity.

The VTOL UAS is runway-independent without the need for launch and recovery equipment. It is designed to operate up to 18 000 feet in ISA conditions and its endurance exceeds 6 hours with a full fuel load and 34 kg (75 lb) of payload. The optional external fuel tank further extends flight time to more than 10 hours. System deployment is possible from a small ISO container, static or mobile. S-100 multi-sensor capability enables the monitoring of borders and provides many opportunities for local authority support ranging from disaster and pollution monitoring to civil disruption and environmental change detection. Ground Forces use the S-100 for convoy protection, supply line integrity and essential frontline resupply.

SELECTED APPLICATIONS

CARGO DELIVERY

Cargo carrying with VTOL UAS is now a reality and the S-100 has proved to be a fast and safe solution for logistics and resupply operations. Using a cargo box, a hook for underslung loads, or a combination of both, the UAV is capable of carrying loads, such as life-saving equipment, urgently needed spare parts and supplies for rescue teams, including food, drink and medical items.

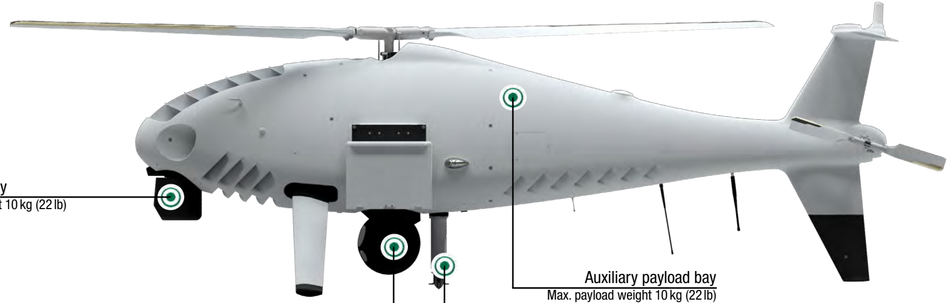
While the cargo box excels at transferring medium-sized goods, such as deploying sonobuoys or dropping life jackets in rescue operations, underslung loads enable the transport of bulky goods. Frontline troops, for example, have successfully been supplied with ammunition and blood. This offers a new vision for remote unmanned air delivery.

SEARCH AND RESCUE

The S-100 excels as a complementary asset for all Search and Rescue (SAR) missions. Equipped with a wide-area search camera or a radar, the S-100 as a mission-proven asset increases the versatility and effectiveness of its search capability. These accurate automated functions can significantly reduce search times, while the radar guarantees all-weather surveillance.

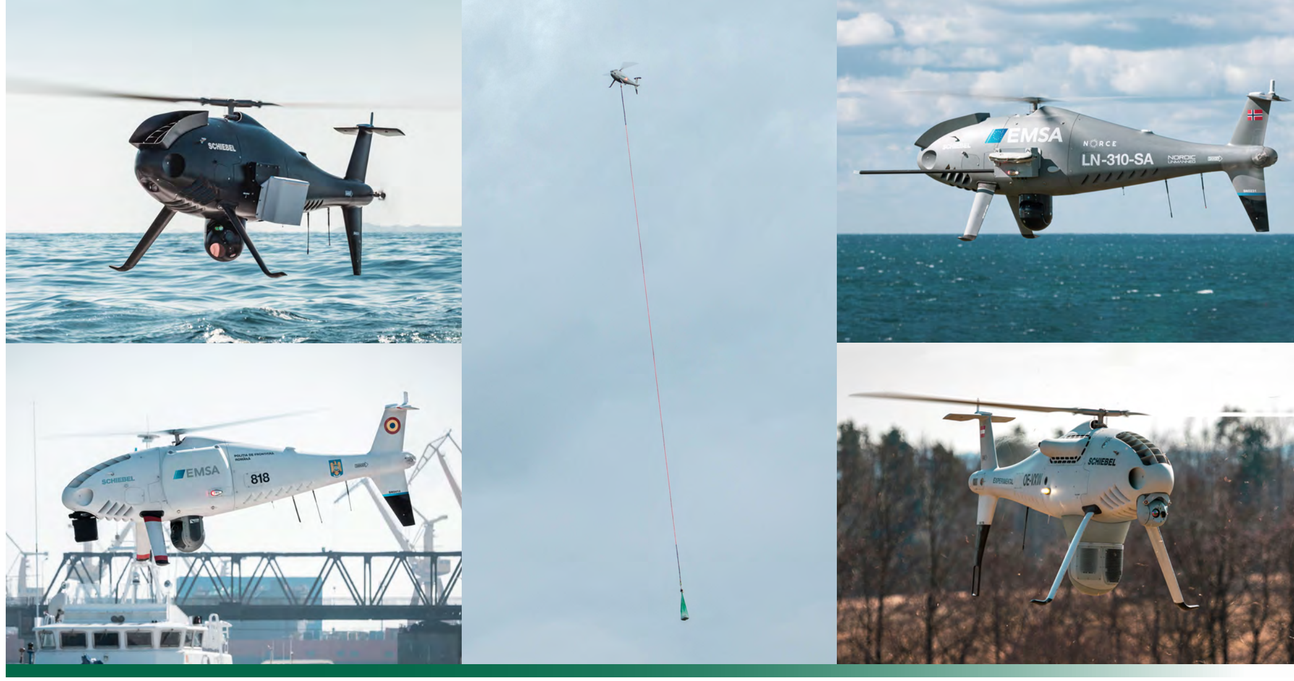
Once the S-100 has detected and identified the target, such as a lifeboat or man overboard, it can dispatch life vests or other life-saving equipment. Simultaneously, the S-100 passes the coordinates on to the manned helicopter, which then initiates rescue. SAR perfectly demonstrates the interoperability between manned and unmanned assets.

CAPABILITIES



CAPABILITIES

- Gimballed 360° EO/IR cameras
- All-weather 360° synthetic aperture radars with Ground / Maritime Moving Target Indication (GMTI/MMTI)
- Day and night wide-area optical scanner
- Light Detection And Ranging (LiDAR)
- Identification Friend or Foe (IFF)
- Automatic Identification System (AIS)
- Sulphur sniffer for emission monitoring
- High-Frequency Direction Finding (HFDF)
- Automatic Dependent Surveillance - Broadcast (ADS-B) Mode 5
- Anti-jam Global Positioning System (GPS)
- Harpoon-grid rapid securing system (NATO-compliant)
- Deckfinder™ landing system
- Cargo box and underslung cargo hook



UNMATCHED FLEXIBILITY

Designed to be a multiple payload capability, the S-100 offers ultimate flexibility for a wide variety of payloads and missions to meet the diverse and individual requirements of customers. The S-100 can be equipped, for example, with a combination of a 360° radar, an EO/IR camera, IFF and AIS, all of which can cross-cue to provide superior situational awareness. The S-100 offers main, auxiliary, nose payload bays and side payload hard points as well as the ability to carry underslung loads. Its typical payload capacity is 50 kg (110 lb).

BACKUP AND SUPPORT

TRAINING

Schiebel OEM courses provide comprehensive training that ranges from introductive to advanced operation and maintenance. The courses adhere to the principles followed by the manned aviation world and include classroom and practical training conducted by experienced instructors.

The operator course modules cover general aviation, S-100 operation, mission planning, simulation and live flying. The maintenance course modules train individuals to be proficient in supporting the system in all environments and conditions. Training takes place at our high-tech facility in Austria or at a location of the customer's choice.

For operator currency, a simulator can be provided as a cost-effective addition that combines all necessary applications to enhance training.

DEDICATED SUPPORT

Robust Integrated Logistics Support (ILS) is the cornerstone of Schiebel's product support services. It includes the provision of personnel in the field or at sea, the online customer portal and the 24/7 help desk, all of which are backed by experienced and certified UAS operators, engineers and technicians.

Customer assistance includes:

- 24/7 help desk
- Software upgrades and service bulletin implementation
- Preventative and corrective maintenance on all system levels
- Depot level repairs
- Spare parts management
- Obsolescence management

CERTIFICATION

The design and manufacture of the safe and reliable S-100 aligns with established best practices of the aviation industry and the mission-proportional regulations of both military and civilian authorities.

Schiebel holds the AS/EN 9100 certification, the recognised standard for quality management in the aviation, space and defence industries.

The Light Unmanned Operator Certificate (LUC), issued by Austro Control under EASA regulations, enables Schiebel to self-authorise operations in European civil airspace within the defined scope and associated privileges. Schiebel, as a UAS service provider, was the first to be awarded this prestigious certificate for S-100 operations.

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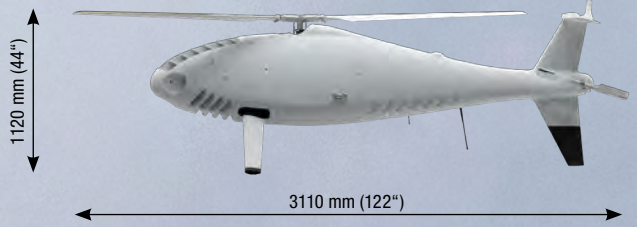
TECHNICAL DATA

Autonomy:	Autonomous takeoff, waypoint navigation and landing
Navigation:	Redundant INS and GPS
Power plant:	S1: 40-kW rotary engine AVGAS 100LL S2: 44-kW rotary engine F-44 (JP-5), F-34 (JP-8), F-35 (Jet A-1)
Data / video link:	Fully digital, compressed video (up to four simultaneous feeds)
Payload power supply:	1-kW alternator
Typical data link range:	50, 111 or 200 km (27, 60 or 108 nm)
Dash speed:	100 kts (185 km/h)
Cruise speed:	55 kts (102 km/h) for best endurance
Typical payload:	50 kg (110 lb)
MTO weight:	200 kg (441 lb)
Typical empty weight:	114 kg (251 lb)
Dimensions:	3110 mm (122”) length 1120 mm (44”) height 1240 mm (49”) width
Main rotor diameter:	3400 mm (133.9”)
Endurance:	>6 hours; with optional external fuel tank extending endurance to >10 hours



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For further information, please visit us at **www.schiebel.net** or contact us by email: **aircraft@schiebel.net**

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