



LEONARDO HELICOPTERS

AW169M

 **LEONARDO**

AW169M

**NEXT GENERATION
MULTIROLE**

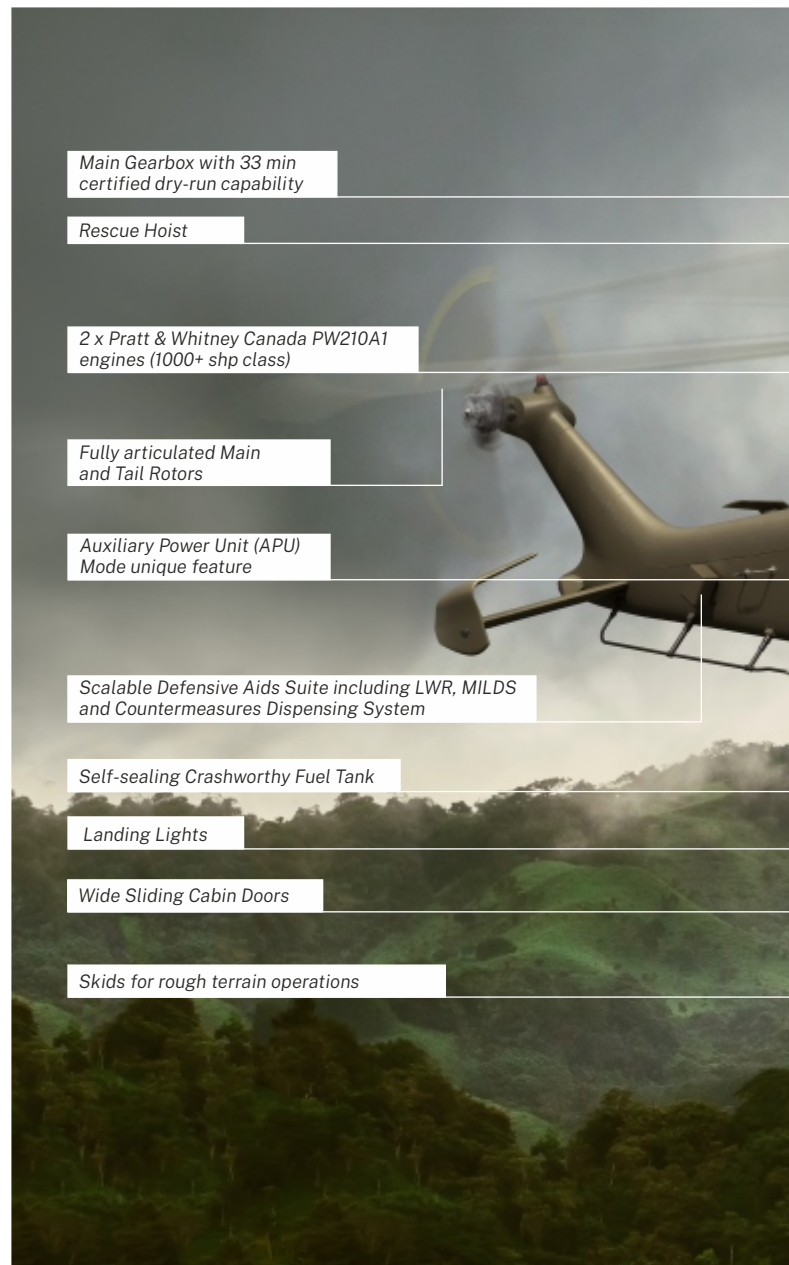




UNRIVALLED PERFORMANCE

The AW169M is the new light intermediate multi-role twin-engine military helicopter designed to meet the most stringent military and civilian certification requirements for military, homeland security and government users. The AW169M's power, agility, maneuverability and excellent handling qualities enable a wide range of missions, day and night, in challenging 'hot and high', austere and urban environments.

Advanced open-architecture avionics and systems enhance the AW169M's multi-role military proficiency by enabling extensive customization. A wide range of mission sensors, role equipment and weapons are available to provide outstanding mission capability. The unobstructed cabin interior enables rapid role reconfiguration to meet changing operational requirements. Optional ballistic protection for cockpit and cabin, self-sealing crashworthy tanks and defensive aids enhance inherent levels of survivability and crashworthiness.



AW169M KEY FEATURES

AIR VEHICLE

- Compact footprint for confined area operations (Length Rotor Turning <15 m; MR Diameter 12.12 m)
- Fully articulated Main and Tail Rotors providing agile handling at low level speed
- Main gearbox (33 minutes certified dry-run capable)
- Two turbo-shaft engines with engine burst containment
- Highest power-to-weight ratio in class providing unmatched performance in the most demanding environments
- Auxiliary Power Unit (APU) mode provides electrical and hydraulic power with rotors stopped without using the batteries
- Up to 30 min performance in HOGE TOP
- Largest cabin in its class (6.3 m³)
- Large sliding doors (1.6 m wide) on Left Hand and Right Hand sides
- Redundancy of main systems (powerplant, electrical, hydraulic, autopilot, etc.)
- Bird-strike resistance
- Crashworthiness to latest standards

CORE AVIONICS

- NVG Compatible Cockpit Display System with three 8" x 10" color displays
- 4 axis Digital Automatic Flight Control System with advanced autopilot functions
- Aircraft Monitoring and Management System
- Communication System including Secure VHF/UHF
- Navigation System
- Flight Management System (FMS)
- Digital Maps and Tactical Data Display
- Identification Systems
- Synthetic Vision Systems
- Cockpit Voice & Flight Data Recorder
- NVG Lighting (Internal / External)
- Integrated Health Monitoring System
- Standby Information System
- HIRF / LEMP / EMC resistant system



30 minutes TOP performance in HOGE

Best-in-class 2.5 minutes OEI performance

NVG Compatible VFR/IFR Glass Cockpit

Fully integrated avionics and systems

Secure LOS and BLOS communications including V/UHF/HF, SATCOM

Electro-Optic/Infra-Red (EO/IR) sensor with Laser Range Finder, Illuminator and optional Designator

Cargo Hook



CABIN SPACE AND ACCESSIBILITY

Designed with inherent multi-role capability and flexibility of operation, the AW169M features the largest passenger cabin in its class providing space for personnel and mission equipment required for a wide range of operations. The unobstructed interior allows easy configuration changes to suit operational requirements including the rapid installation of mission and role equipment such as insertion / extraction equipment, crew served weapons and mission console.

Large sliding doors (1.60 m / 5 ft 3 in wide) and long footsteps on both sides of the helicopter and flat floor enable rapid entry / egress of troops and ease of loading / unloading cargo, equipment and stretchers on the ground. Rescue hoist and rappelling / fast roping equipment enables troop insertion and extraction from the hover.

The AW169M can carry up to 10 troops or can be rapidly converted to carry 2 stretchers or for SAR, SF or C2 / C4 / ISR mission configurations.

MISSION & ROLE EQUIPMENT

A wide range of mission and role equipment can be installed on the AW169M, further enhancing its operational effectiveness. This includes, but is not limited to the following:

ROLE EQUIPMENT

- Skid landing gear
- Crashworthy Self-Sealing Fuel Tanks
- Ballistic Protection (Cockpit & Cabin)
- Wire Strike Protection System
- Searchlight (NVG Compatible)
- NVG Compatible Formation Lights
- Overwater Kit (Flotation & Life Rafts)
- Fast Roping and rappelling system
- Crashworthy Seats
- Medical and Casualty Evacuation (2 stretchers) and 4 seats
- Cargo Hook – Single (1,500 kg); Dual (800 kg)
- External Rescue Hoist – Single
- Tail Fin & Underbelly Cameras

WEAPON SYSTEMS

- Internal: 2 x Door Mounted Sniper Rifles
- Internal: 2 x 7.62 mm Pintle Mounted Machine Guns (Door)
- External Weapons Sighting System
- External: 2 x 12.7mm Gun Pod
- External: 2 x 70mm Rocket Launchers
- ATG Missile capability

AVIONIC EQUIPMENT

- Military Communications including Secure Radios with TACSAT capability, Combat Tactical Radios (V/UHF, HF, with crypto), Video Downlink, Tactical Data Link
- Mode 5 IFF Transponder
- Integrated Defensive Aids Suite (DAS) including, Electronic Countermeasure Dispensing System (ECDS), Laser Warning Receiver (LWR) and Missile Warning System (MWS), Threat Warning Display and training mode embedded
- Electro-Optic / Infra-Red (EO/IR) sensor with optional Laser Range Finder / Designator
- Integrated Mission Console with downlink providing Tactical Processing, Link Management and C2/C4/ISR
- Weather / Search Radar
- Mission/weapons management system
- Digital Map Generator





AW169M CHARACTERISTICS

Weight (MGW)

| | | |
|---------------------------------------|----------|-------------|
| Max Gross weight | 4,800 kg | (10,582 lb) |
| Increased Gross Weight ⁽¹⁾ | 5,100 kg | (11,243 lb) |

Propulsion

Powerplant 2 x Pratt & Whitney Canada PW210A1 Turboshafts engines with FADEC

Engine Ratings

| | | |
|--------------------------|------------|-----------------|
| Take-Off Power (30 mins) | 2 x 876 kW | (2 x 1,175 shp) |
| Maximum Continuous Power | 2 x 686 kW | (2 x 920 shp) |

Capacity

| | |
|------------|---|
| Crew | 1 to 2 |
| Passengers | Up to 8 troops heavily / 10 troops lightly equipped |

Dimensions

| | | |
|-------------------------------|---------|---------------|
| Overall Length ⁽²⁾ | 14.65 m | (48 ft 01 in) |
| Overall Height ⁽²⁾ | 4.3 m | (14 ft 1 in) |
| Rotor Diameter | 12.12 m | (39 ft 09 in) |

Performance

| | | |
|--|----------|-------------|
| Max Cruise Speed (@5,000 ft, ISA, MGW, MCP) | 261 km/h | (141 kts) |
| HIGE (ISA, MGW, TOP) | 4,572 m | (15,000 ft) |
| HOGF (ISA, MGW, TOP) | 3,611 m | (11,846 ft) |
| Max Range (@5,000 ft, ISA, MGW) | 701 km | (378 nm) |
| Max Endurance (@5,000 ft, ISA, MGW) | | 3 hr 46 min |

⁽¹⁾ Available as an optional kit

⁽²⁾ Rotors turning



MULTI-ROLE CAPABILITY

TROOP TRANSPORT / SPECIAL FORCES OPERATIONS

The rapidly reconfigurable cabin provides crashworthy seating for up to 10 troops in fore / aft facing layouts. Ballistic protection as well as crew served weapons, such as 7.62 mm GPMG or Sniper Rifles located in the cabin door, can be provided. Fore and aft facing seats enable rapid egress and ingress of a Special Forces (SF) team through the cabin doors. The fast roping and rappelling system enables simultaneous egress of two troopers per side.



Typical Troop Transport, Special Forces Operations Configuration

CARGO RE-SUPPLY / EXTERNAL LIFT

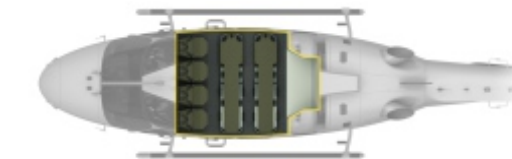
The 6.3 cu meters constant section cabin, flat floor and large 1.6 m wide cabin doors enable rapid loading and unloading of cargo and equipment. Coupled with a 1,500 kg cargo hook capability, with "in cockpit" monitoring the helicopter has the capacity to conduct effective resupply and lift operations.



Typical Cargo Configuration

CASEVAC / MEDEVAC

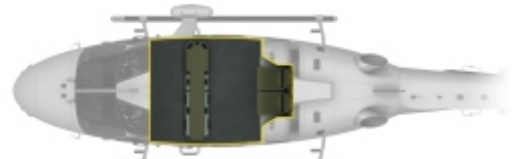
The rapidly reconfigurable cabin enables designation for medical operations with ample space for up to 4 seats in the cabin, with 2 stretchers mounted transversally on the flat floor enabling full body access to patients. Attachment points and power outlets are provided for medical equipment. The availability of an external hoist allows in flight rescue and evacuation missions even operating in a hostile environment thanks to crew served weapons.



Typical CASEVAC-MEDEVAC Configuration

SEARCH & RESCUE

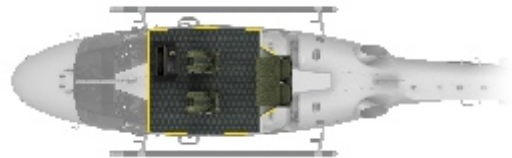
The cabin can be rapidly reconfigured to host hoist operator and medic enabling hoist operations and patient recovery through the cabin door. An optional mission console integrated with helicopter avionic system enhances situational awareness and search capabilities to further increase mission effectiveness.



Typical SAR Configuration

COMMAND AND CONTROL (C2), COMMUNICATIONS, COMPUTERS (C4), INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (ISR)

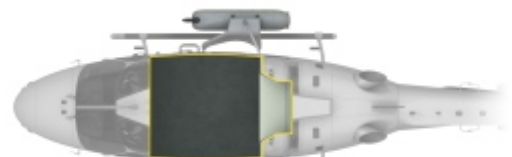
Battlefield capabilities from C2 to C4ISR are provided depending on the mission by means of a dedicated console in the cabin integrated with the AW169M mission management, mission systems and sensors. This enables the AW169M to collect, produce and disseminate time critical C2 and ISR information to the force.



Typical Reconnaissance Configuration

CLOSE AIR SUPPORT / ARMED ESCORT

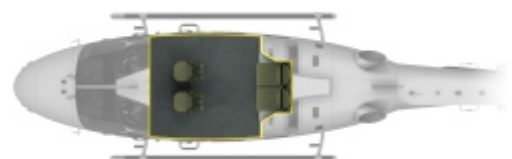
The AW169M sighting and external weapon systems provide Close Air Support and Armed Escort to offer scalable threat suppression capabilities, in order to enhance combat effectiveness. The external weapon options include heavy Machine Gun Pods, guided and unguided rockets and air-to-ground missiles, complementing external mounted crew served weapons that include pintle-mounted 7.62 mm machine guns. Defensive Aids Suite (DAS) systems can be fitted to improve protection from attack by surface-to-air missiles, laser and radar guided missiles.



Typical Close Air Support / Armed Escort Configuration

TRAINING CAPABILITY

The AW169M provides versatility, performance and exceptional handling capability that make it the ideal training helicopter. Thanks to the benefits of training commonality via a single platform across multiple missions, it offers ease of familiarization with the systems of the helicopter and allows easier transition to operational configurations. The observer seats allow non-flying students to fully observe the cockpit, maximizing learning and training opportunities. The cutting-edge avionics and systems together with the exceptional cabin flexibility ensure best-in-class levels of safety and unparalleled performance in the most demanding environments.



Typical Training Capability Configuration

MARITIME CAPABILITY

The AW169M provides light intermediate class multi-role maritime capability. Lashing points and folding main rotor blades enable the AW169M to be secured during adverse weather conditions and stowed in suitably sized hangars.

SURVIVABILITY & CRASHWORTHINESS

Leveraging the major contributions to battlefield survivability made by Doctrine and Training, and Intelligence, Mission-Planning and Re-Planning, the AW169M will survive in the modern battlefield. Platform and mission systems capabilities enable the AW169M to avoid threats, avoid detection by threats, avoid acquisition by threats and avoid a hit.

| AW169M PLATFORM & SYSTEM CAPABILITIES | Avoid Threat | Avoid Detection | Avoid Acquisition | Avoid Hit |
|--|--------------|-----------------|-------------------|-----------|
| PLATFORM CAPABILITIES | | | | |
| • Range / Endurance (for routing / re-routing) | ✓ | ✓ | ✓ | |
| • Agility / Performance for NOE flight (terrain masking) | ✓ | ✓ | ✓ | ✓ |
| • Power margins for Hot & High / Performance | ✓ | ✓ | ✓ | ✓ |
| • Low Signatures (Visual, Acoustic) | ✓ | ✓ | ✓ | |
| SYSTEM CAPABILITIES | | | | |
| • Day Night All Environment Operations | ✓ | ✓ | ✓ | |
| • Off-Board Mission Planning | ✓ | ✓ | ✓ | |
| • Situational Awareness: Digital Map | ✓ | ✓ | ✓ | |
| • Threat warning and geo-location: Laser / EW | ✓ | ✓ | ✓ | |
| • Comprehensive Voice, Video and Data Comms | ✓ | ✓ | ✓ | |
| • On-Board Mission Re-Planning | ✓ | ✓ | ✓ | |
| • Synthetic Vision / Terrain Avoidance Systems | ✓ | ✓ | ✓ | |
| • Sensors / Weapons capability—stand off from threats | | ✓ | ✓ | |
| • Counter threat (Chaff & Flare etc.) | | | ✓ | ✓ |
| • Threat Suppression | | | ✓ | ✓ |

AW169M can survive small arms fire due to its inherent ballistic tolerance provided by damage tolerant / fail-safe rotor blades, airframe structure and components, run-dry main and tail gearboxes, twin engines with fire suppression and turbine burst containment, dual electrical and hydraulic systems, ballistic tolerant / self-sealing fuel tanks and ballistic protection of critical components. In the event of a crash, the AW169M provides crash protection through energy absorbing landing gear and structure, crashworthy pilot, co-pilot and troop seats and restraints, crashworthy fuel tanks to minimize post-crash fire, flotation equipment for maritime operations, and rapid post-crash / post ditching egress.



CUSTOMER SERVICES SOLUTIONS

The main objective of Leonardo's Helicopter Division Support mission is to assist Customers in performing their missions successfully. Fundamental to this is to ensure that operational safety is as high as possible. Leonardo continues to develop its support services and advanced solutions in line with evolving Customer requirements. In addition, the "Digital First" approach has been embraced at 360° and applied to all the stages of the helicopter journey, starting from the earliest design and production phases to long term support and operations. Today Leonardo offers a full range of services to Customers. These can be contracted individually or organised under integrated support schemes where Leonardo is responsible for performance elements that vary from the material logistics support guarantee up to helicopter availability, moving the boundaries of traditional support.

The range of services includes:

- **Spare & Repairs:** the Material Support Services Organisation is accountable for material and logistics provision of spares, repairs and overhauls services;
- **Maintenance:** in support of Customers, Leonardo is able to provide Line and Base maintenance at Customer facilities, utilising an extensive network of maintenance service centres, or through company-owned and third party organisations;
- **Technical Services:** Leonardo can provide an extensive range of capabilities based on the latest standards for interactive electronic technical publications, technical query resolution, repair design and modification assistance;
- **Advanced Services:** Leonardo can provide remote support to the technicians through augmented reality (HeliLink), Health & Usage Monitoring System (HUMS) analysis, flight planning tools (SkyFlight), customised logistics packages, upgrades from traditional paper-based systems to a modern web-based approach through online company portals, facilitating direct access to company information. HELIconnect is the new mobile application that gives Customers access to the entire spectrum of digital services - via the "all-in-one" app;
- **Fleet Operations Centres:** located across the globe, available 24/7, to promptly help Customers to resolve technical or logistic issues and in order to get back to flight.



Repair Services

CUSTOMER TRAINING SOLUTIONS

Leonardo, through its Helicopter Division, is a world leading provider of professional training services, systems and solutions to a global Customer base. The company is fully committed to a training policy that enables our Customers to make the most effective safe use of their helicopters. With over 300 professional training personnel, Leonardo has delivered essential training to the world's helicopter operators for over 65 years. Our team includes flying and technical instructors with considerable military and civil helicopter experience. The training capability for the AW169M, at the Training Academy in Sesto Calende in Italy, features the latest synthetic training devices combined with a comprehensive programme of training courses for air crew, rear crew, ground crew and maintainers. In addition, Leonardo is developing a network of regional Training Centers to ensure that Customers can access worldclass training at a time and place convenient to them. The range of training solutions is evolving constantly. Services include type rating courses in conjunction with basic training, refresher training and complete turnkey solutions. Leonardo's is also focusing on a variety of mission specific training so that Customers can do more with their aircraft to deliver total crew operational capability.

To meet the demands of an ever changing operating environment our Simulation Learning & Support Services Systems (SL&SS) teams have leveraged Commercial-Off-The-Shelf technology combined with OEM software solutions to provide award-winning, cost effective training devices. These range from simple computer based training courses through to maintenance training devices and full flight simulators (FFS), whilst the new ETD e-Motion brings together the advantages of each of them to ensure maximum efficiency. Also in the training domain, the data-driven digital approach guarantees contextualized and personalised courses exceeding all Customers' needs and requirements.



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