

# AW149

HELICOPTERS DIVISION



 **LEONARDO**

**AW**149

**MULTI-MISSION  
PERFORMANCE**





# DELIVERING MULTI-ROLE VERSATILITY

The AW149 is the latest-generation multi-role military helicopter rapidly reconfigurable for a wide range of demanding missions in the most severe operational environments. Advanced platform and system technologies, equipment and weapons; coupled with unparalleled safety and performance and high levels of survivability and crashworthiness; provide military customers with a highly effective survivable and cost-effective capability.

The AW149 is Day / Night VFR / IFR capable with a single pilot NVG compatible low workload 'glass cockpit' with state of the art Human Machine Interface. Its advanced, open-architecture mission system enables the quick and cost-effective integration of customer-specific avionics, mission and weapon systems.

*Role Installable Rescue  
Hoist/Single or Dual type*

*Two engines (2000/2500 shp class)  
Dedicated 60 kW Auxiliary  
Power Unit (APU)*

*Up to 30 minutes performance in HOGE*

*Self sealing fuel tanks*

*Scalable Defensive Aids Suite  
(DAS) solutions*

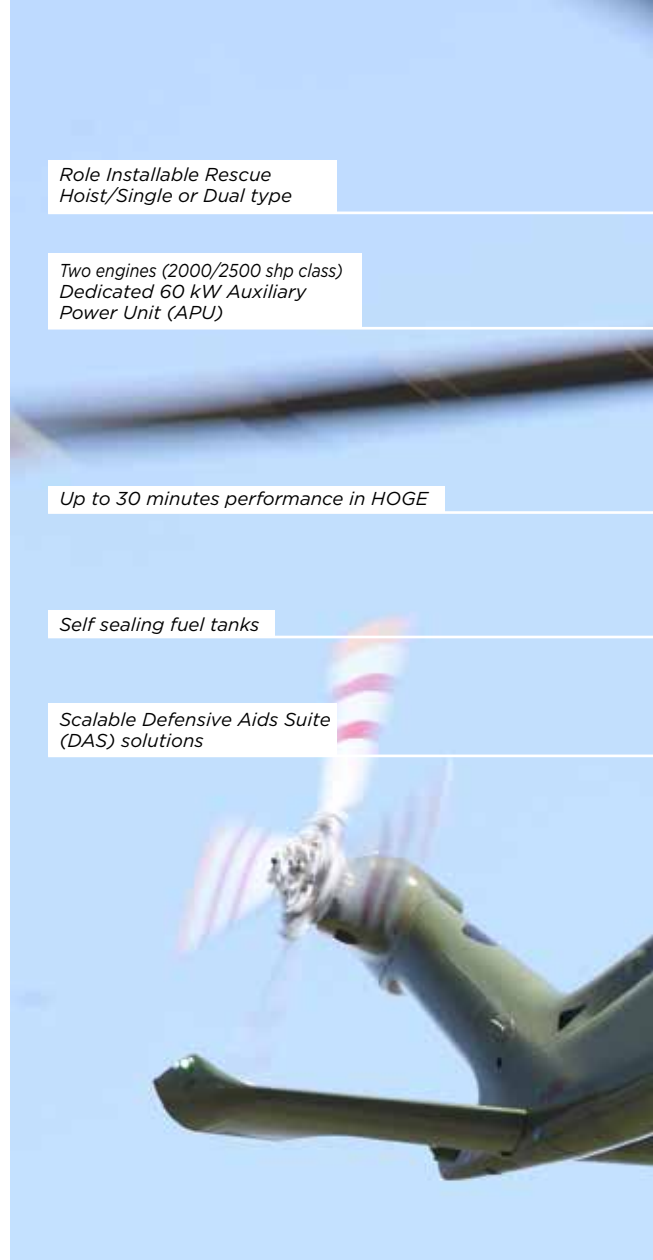
## AW149 KEY FEATURES

### AIR VEHICLE

- › Compact footprint for confined area operations (Length Rotor Turning 17.6m; Rotor Dia 14.6m)
- › Fully articulated Main and Tail Rotors providing agile handling at low level
- › Main gearbox (50 min certified dryrun capable)
- › Two engines with dual lubrication and engine burst containment and integrated particle separator
- › Dedicated 60kW Auxiliary Power Unit (APU)
- › Up to 30 min performance in HOGE
- › Large Cabin 3.47m (l) x 2.43m (w) x 1.42m (h), cabin volume 11.2 m<sup>3</sup>
- › Large sliding doors (1.6 m wide) on both side port and starboard
- › Robust undercarriage and high ground clearance for rough terrain operations
- › Dual electrical and hydraulic systems
- › Bird-strike resistant
- › Crashworthiness to latest standards

### CORE AVIONICS & SYSTEMS

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





Fully articulated Main and Tail Rotors

Main gearbox with 50 min certified dry run capability

Electro-Optic/ Infra-Red (EO/IR) sensor

Searchlight (IR Filter)

Fully integrated avionics system, with four 8" x 10" colour active matrix liquid crystal displays (AMLCD)

Cargo Hook

Wide sliding doors



## CABIN SPACE AND ACCESSIBILITY

The AW149's large unobstructed main cabin provides space for the rapid transport of heavily laden troops and mission equipment in support of high-tempo operations. Large sliding doors on both sides of the helicopter and low floor height enable rapid ingress and egress of troops, ease of loading and unloading of cargo and equipment and rapid loading of NATO stretchers on the ground. Fast roping and hoist operations through the large sliding doors enables troop insertion and extraction from the hover, whilst allowing simultaneous threat suppression from window mounted crew-served weapons.

The cabin can be rapidly reconfigured from Troop Transport and Cargo Re-Supply into more demanding configurations, including MEDEVAC, CASEVAC, SAR, SF/CSAR and C2/ISR. A large equipment stowage area for mission equipment, such as stretchers and medical kit, optionally accessible from the main cabin in flight, keeps the cabin space free for cabin operations.

# MISSION & ROLE EQUIPMENT

A wide range of mission and role equipment can be installed on the AW149, further enhancing its operational effectiveness. This includes, but is not limited to the following.

## Role Equipment

- › Wire Strike Protection System
- › Searchlight (NVG Compatible)
- › NVG Compatible Formation Lights
- › Ballistic Protection (Cockpit & Cabin)
- › Crashworthy Self-Sealing Fuel Tanks
- › Overwater Kit (Flotation & Life Rafts)

## Avionic Equipment

- › Integrated Mission Console providing Tactical Processing, Link Management and C2/ISR
- › Electro-Optic / Infra-Red (EO/IR) sensor with optional Laser Range Finder / Designator
- › Military Communications including Secure Radios with TACSAT capability, Combat Tactical Radios, Blue Force Tracker, Personnel Locator System, Video Downlink, Tactical Data Link
- › Integrated Defensive Aids Suite (DAS) including Electronic Countermeasure Dispensing System (ECDS), Radar Warning Receiver (RWR), Laser Warning Receiver (LWR), Missile Warning System (MWS) and IR Jammer
- › Weather / Search Radar

## Utility Equipment

- › Crashworthy Foldable Seats
- › Medical Evacuation (3 stretchers) and Casualty Evacuation (4 to 6 stretchers)
- › Cargo Hook
- › Electrical Rescue Hoist - Single or Dual type
- › Rappelling / Fast Roping Frame
- › Internal Auxiliary Fuel Tanks
- › Full Ice Protection system

## Weapon Systems

- › Observation & Targeting System
- › Internal: 2 x Sniper Rifle (Window)
- › Internal: 2 x 7.62 mm Machine Guns (Window / Cabin Door)
- › External: 2 x 12.7 mm Gun Pods or 2 x 20 mm Gun Pods
- › External: 2 x 2.75" Rocket Launchers (Guided / Unguided)
- › External: 2 x Air Ground To Missile Launchers





# AW149 CHARACTERISTICS

## WEIGHT (MTOW)

Max Take Off Weight	8,300 kg	18,298 lb
Optional Increased Gross Weight	8,600 kg	18,960 lb

## PROPULSION

Powerplant 2 x General Electric CT7-2E1 Turboshafts with FADEC (2,000 shp class each) 1 x Safran e-APU (60 kW) or

2 x Safran Aneto-1K Turboshaft with FADEC (2,500 shp class each) and 1 x Safran e-APU (60 kW)

## ENGINE RATINGS

### General Electric CT7-2E1

Take off power (5 min)	2 x 1,479 kW	2 x 1,983 shp
Maximum Continuous Power	2 x 1,395 kW	2 x 1,870 shp

### Safran Aneto-1K

Take off power (5 min)	2 x 1,827 kW	2 x 2,450 shp
Maximum Continuous Power	2 x 1,715 kW	2 x 2,300 shp

## CAPACITY

Crew	1-2
Passengers	Up to 19

## DIMENSIONS

Overall length <sup>(1)</sup>	17.57 m	57 ft 8 in
Overall height <sup>(1)</sup>	5.07 m	16 ft 7 in
Rotor diameter	14.60 m	47 ft 11 in

## PERFORMANCE

### General Electric CT7-2E1 (ISA, 8,300 kg)

VNE (IAS,SL)	313 km/h	169 kt
Max cruise speed (SL)	287 km/h	155 kt
HOGE	2,893 m	9,490 ft
HIGE	3,948 m	12,953 ft
Maximum range (SL) <sup>(2)</sup>	958 km	517 nm
Maximum endurance (SL) <sup>(2)</sup>		4 h 55 min

### Safran Aneto-1K (ISA+35, 8,300 kg)

VNE (IAS, SL)	313 km/h	169 kt
Max Cruise speed (SL)	292 km/h	158 kt
HOGE	1,554 m	5,100 ft
HIGE	3,185 m	10,450 ft
Maximun Range	844 km	456 nm
Max endurance		4 h 13 min

(1) Rotors turning

(2) No reserve, with "Under Floor" and "Transversal" auxiliary fuel tanks



# MULTI-ROLE CAPABILITY

## TROOP TRANSPORT

The rapidly reconfigurable cabin provides crashworthy seating for up to 19 lightly equipped troops or 16 fully equipped troops in several layouts. Ballistic protection as well as crew served weapons, such as 7.62 mm GPMG located in the forward cabin windows or in cabin door, can be provided.

## CARGO PALLET RE-SUPPLY / EXTERNAL LIFT

The large 11.2 cu metre constant section cabin, flat floor and large 1.6 m wide cabin doors enables rapid loading and unloading of cargo and equipment. Coupled with a 2,800 kg cargo hook capability, with "in cockpit" monitoring the helicopter has the capacity to conduct effective resupply and lift operations.

## CASEVAC / MEDEVAC

The rapidly reconfigurable cabin enables designation for medical operations. NATO stretchers mounted transversally on the flat floor enable full body access to patients or 4 NATO stretchers can be carried in a floor mounted module. Attachment points and power outlets are provided for medical equipment. A 3 stretcher medical module is available for more demanding missions.

## SEARCH & RESCUE

The large cabin fitted with 2 seats for hoist operator and medic and 2 gunner seats and window mounted guns, provides unobstructed space for hoist operations and patient recovery through the large cabin door using a Stokes Litter or Rescue Basket. In-flight access to the rear stowage bay enables SAR mission equipment to be stowed outside of the cabin area. Optional mission consoles enhance situational awareness and search capabilities to further enhance mission effectiveness.

## SPECIAL FORCES OPERATIONS & COMBAT SAR

Centrally mounted sideways facing back-to-back seat layout enables rapid egress and ingress of a Special Forces (SF) team through the large sliding doors. The fast roping system enables simultaneous egress of two troops per side. The rescue hoist can be used to recover SF teams when in the hover. Threat suppression is provided by crew served weapons in the forward windows.

## COMMAND AND CONTROL (C2), INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (ISR)

Battlefield C2 and enhanced ISR capabilities are provided by a mission console in the cabin fully integrated with the AW149 mission management, mission systems and sensors. This enables the AW149 to collect, produce and disseminate time critical C2 and ISR information to the force.

## CLOSE AIR SUPPORT/ARMED ESCORT

Fully integrated targeting and the external weapon system complement window and door mounted crew served weapons. Heavy machine gun pods, guided and unguided rockets and air to ground/air to air missiles provide scalable threat suppression capabilities to enhance combat effectiveness.



*Typical Troop Transport Configuration*



*Typical Cargo Configuration*



*Typical CASEVAC/MEDEVAC Configuration*



*Typical SAR Configuration*



*Typical Special Ops Configuration*



*Typical Command and Control Configuration*



*Typical Close Air Support Configuration*



# SURVIVABILITY & CRASHWORTHINESS

Leveraging the major contributions to battlefield survivability made by Doctrine and Training, and Intelligence, Mission-Planning and Re-Planning, the AW149 will survive in the modern battlefield. Platform and mission systems are designed to enable the AW149 to avoid threats, avoid detection by threats, avoid acquisition by threats and avoid a hit.

AW149 PLATFORM & SYSTEM CAPABILITIES	Avoid Threat	Avoid Detection	Avoid Acquisition	Avoid Hit
<b>PLATFORM CAPABILITIES</b>				
> Range / Endurance (for routing / re-routing)	✓	✓	✓	
> Agility / Performance for NOE flight (terrain masking)	✓	✓	✓	✓
> Power margins for Hot & High / Performance	✓	✓	✓	✓
> De-Icing / Anti-Icing for Winter ops	✓	✓		
> Low signatures (Visual, Acoustic and IR)	✓	✓		✓
<b>SYSTEM CAPABILITIES</b>				
> Day Night All Environment Operations	✓	✓	✓	✓
> Off-Board Mission Planning	✓	✓	✓	
> Situational Awareness: Digital Map, Threat Overlay	✓	✓	✓	
> Threat warning and geo-location: Radar / Laser / EW	✓	✓	✓	
> Comprehensive Voice, Video and Data Comms	✓	✓	✓	
> Receive and use 3rd party tactical data	✓	✓	✓	
> On-Board Mission Re-Planning	✓	✓	✓	
> Synthetic Vision / Terrain Avoidance Systems	✓	✓	✓	
> Sensors / Weapons capability - stand off from threats		✓	✓	
> Counter threat (Jamming , Chaff & Flare, DIRCM etc.)			✓	✓
> Threat suppression				✓

AW149 can survive small arms fire due to high levels of 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 system and ballistic protection of critical components. In the event of a crash, the AW149 provides the crew and cabin personnel with high levels of crash protection through energy absorbing landing gear and structure, crashworthy seating and restraints, crashworthy fuel tanks to minimize post-crash fire, flotation equipment for maritime operations, and rapid post-crash / post ditching egress.



# CUSTOMER SUPPORT SOLUTIONS

The Leonardo Helicopters Support mission is to assist Customers to perform their missions successfully. Fundamental to this mission is to ensure that operational safety is as high as possible. The company continues to develop its support services and advanced solutions in line with Customer's evolving requirements.

Today Leonardo Helicopters offers a full range of Support services to Customers. These can be contracted individually or organised under some form of integrated support scheme where Leonardo Helicopters is responsible for elements of availability, moving the boundaries of traditional support. In the most comprehensive schemes the Customer specifies where and when he wants to fly and Leonardo Helicopters is accountable and responsible for the complete service.

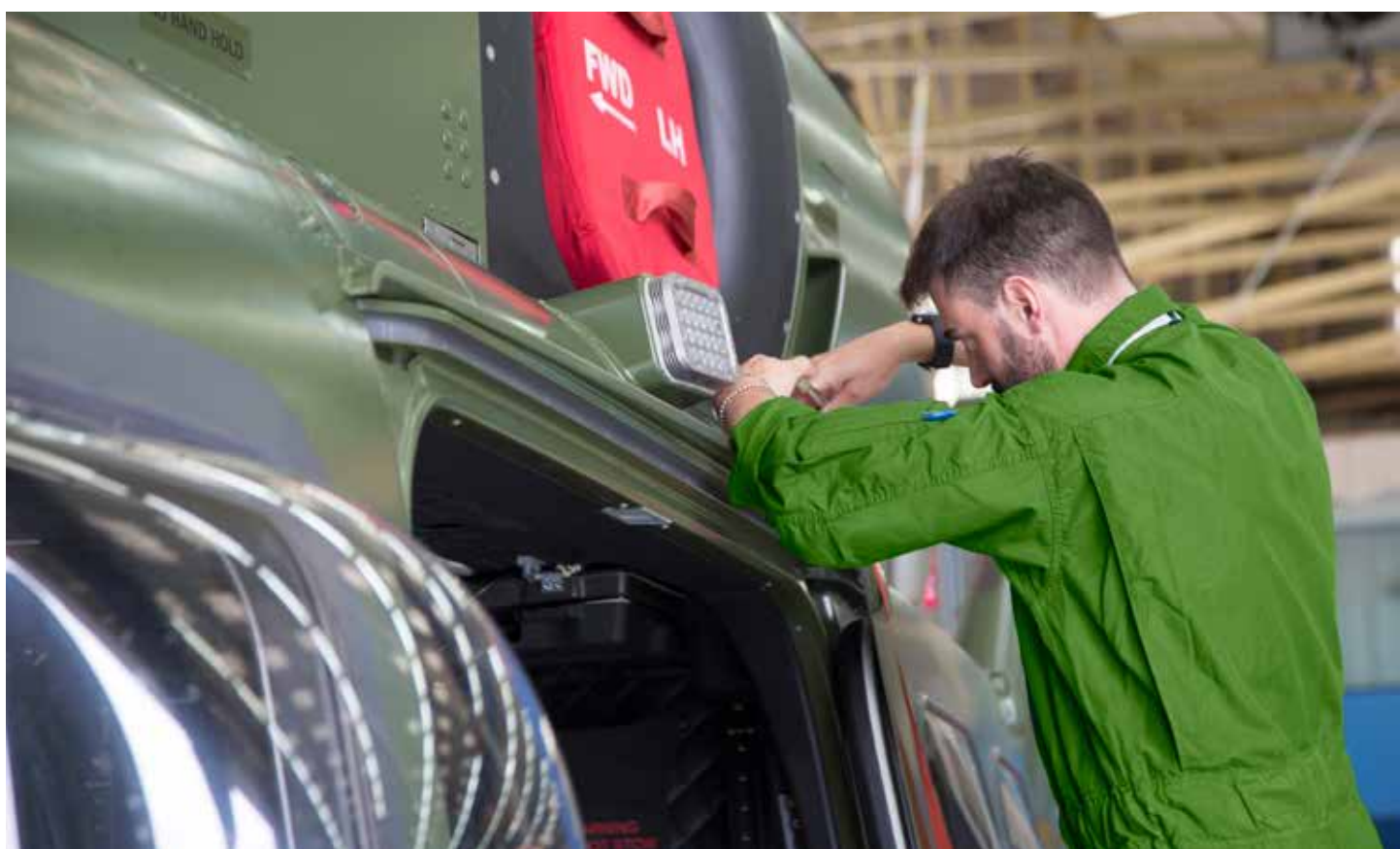
The range of services includes:

- › **Spare & Repairs:** the Material Support Services Organisation is accountable for all material and logistics aspects of spares, repairs and overhauls, including a material AOG service. The organisation can also provide logistic modelling.
- › **Maintenance:** in support of customers worldwide, Leonardo Helicopters can provide line and base maintenance at Customers facilities, utilising an extensive network of maintenance centres, or through company-owned and third party organisations.
- › **Technical Services:** an extensive range of capabilities exist including the latest standards of integrated electronic technical publications, technical query resolution, repair design, modification assistance, etc.
- › **Advanced Services:** including remote support to the technicians through augmented reality, HUMS analysis, flight planning tools, various logistics packages, electronic replacements for traditional paperwork systems, internet portals for direct access to company data, etc.
- › **Fleet Operation Centres:** located across the globe, available 24/7, to promptly help Customers resolve issues and get back to flight.



*Repair Services*

*Maintenance Services*





*Full Flight  
Simulators*

## CUSTOMER TRAINING SOLUTIONS

Leonardo Helicopters 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 Helicopters 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 civilian helicopter experience. This training capability for the AW149, in

the Training Academies at Sesto Calende in Italy, Philadelphia in the United States and Kuala Lumpur in Malaysia, 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 Helicopters is developing a network of regional Training Centers to ensure that customers can access world-class training at a time and place convenient to them.

The range of training solutions is evolving constantly. Services include civil type rating courses in conjunction with basic training, refresher training and complete turnkey solutions. Leonardo Helicopters 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.

*24/7 Fleet Operations*



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