

A129 INTERNATIONAL MULTI-ROLE COMBAT HELICOPTER, ITALY



The A129 International multi-role combat helicopter is the latest variant of the A129 Mangusta (Mongoose) helicopter in service with the Italian Army. It is manufactured by AgustaWestland, a joint venture company formed by Finmeccanica of Italy and GKN of the UK. The Mangusta has been successfully deployed with UN operations in Somalia and Angola. The A129 International is a multi-role helicopter for armed reconnaissance and surveillance, high-value ground-target engagement, escort, fire support, and air-threat suppression. It is armed with new powerful air-to-ground and air-to-air missiles, an off-axis cannon, and an increased weapon payload. The five-bladed A129 International also has more powerful engines than the four-bladed Mangusta.

The Italian Army is equipped with 45 A129 Mangusta helicopters and 15 A129 International, referred to as A129 CBT (combat configuration).

In January 2002, AgustaWestland were awarded a contract to upgrade the first 45 to the multi-role standard. The upgrade includes: five-blade composite main rotor and two-blade tail rotor, Rolls-Royce Gem 1004 engines, new stronger transmission with a torque of 1,700shp, strengthened fuselage giving an increase in take-off weight to 4,600kg, improved weapons systems including Oto Melara 197B 20mm nose-mounted cannon and the Stinger air-to-air missiles, new FLIR (forward-looking infrared) system, improved countermeasures suite including EADS AN/AAR-60 missile launch

detector and new global positioning / inertial navigation (GPS/INS) system. Deliveries have begun and are to conclude in 2008.

The A129 is able to self-deploy over 1,000km, using external fuel tanks while carrying four air-to-air missiles for self-protection. The helicopter is air transportable by C-130 and larger transport aircraft.

DESIGN

The structure of the helicopter is a semi-monocoque design with an aluminium alloy frame. Composite materials make up almost 50% of the fuselage weight. The airframe provides ballistic protection against 12.7mm armour piercing rounds. The engines are armour protected. The main rotor has ballistic tolerance against 12.7mm rounds.

COCKPIT

The pilot and gunner cockpits are in a stepped tandem configuration. Both cockpits are equipped with multifunction displays, which present information from the integrated management system and provide a synthetic waypoint map, navigation data, weapon status, weapon selection, communications and aircraft/flight data. The displays are equipped with multifunction keyboards.

The helicopter is equipped with an automatic flight control system, which provides nap-of-the-earth flight capability and the level of stability for precise weapon aiming. A Tactical Navigation Display enhances mission management and situational awareness.

WEAPONS

The A129 International helicopter can be armed with Raytheon Stinger or MBDA (formerly Matra BAe Dynamics) Mistral air-to-air missiles. Stinger missile certification was successfully completed on the Italian Army A129CBT in October 2003, using Stinger RMP Block I missiles.

The helicopter has dual air-to-ground missile capability with the Lockheed Martin Hellfire or Raytheon TOW 2 missile or a mix of both, giving the gunner selective fire against low- and high-value targets, and the capability of precise hits in urban environments. The Mangusta is fitted with the HeliTOW system for the TOW2A missile.

The A129 International also has dual rocket system capability, deploying 70mm rockets for ammunition commonality with NATO countries and 81mm rockets for longer-range engagements. The Mangusta can carry four 81mm rocket launchers. A 20mm three-barrel Gatling-type turreted cannon with 500 rounds of ammunition is mounted under the nose.

COUNTERMEASURES

The helicopter's electronic warfare suite includes a Elettronica ELT-156 radar warning receiver and BAE Systems Italia RALM-101 laser warner. The helicopter countermeasures systems include Elettronica ELT-554 radar and BAE Systems IEWS AN/ALQ-144A infrared jammer and chaff and flare decoy dispensers.

OBSERVATION AND TARGETING

The helicopter's infrared night-vision system (HIRNS) includes a mini forward-looking infrared (FLIR), supplied by Honeywell, mounted on a steerable platform at the nose of the helicopter. The pilot's

integrated helmet and display sighting system (IHADS), by Honeywell, positions a monocular over one eye and displays the view presented by the FLIR. The system provides automatic weapon aiming, which can be used by day or night.

A mast-mounted sight can be installed, giving the helicopter the capability to aim and fire weapons from cover. The sight is used for target acquisition, missile tracking, laser target designation, laser tracking and laser rangefinding.

ENGINES

The A129 International helicopter has a fireproof engine compartment with two low-noise LHTEC-T800 turboshaft engines. The engines are separated, and there are two separate fuel systems with cross-feed capability. The crash-resistant tanks are self-sealing and fitted with self-sealing lines and a digital fuel feed controller. The thermal signature is minimised by the installation of an infrared exhaust suppression system.

SPECIFICATIONS - A129 INTERNATIONAL MULTI-ROLE COMBAT HELICOPTER, ITALY

Dimensions

| | |
|---|----------|
| overall length with both rotors turning | 14.29 m |
| height to top of rotor | 3.35 m |
| diameter main rotor | 11.90 m |
| fuselage length | 12.50 m |
| maximum mission gross weight | 5,000 kg |

weapon capability

| | |
|---------------------------------|-----|
| hellfire or tow 2 missiles | 8 |
| 70 mm rockets | 76 |
| 81 mm rockets | 38 |
| 20 mm ammunition rounds | 500 |
| air to air (stinger or Mistral) | 4/8 |

observation and targeting sensors

2nd generation forward looking infrared
(83 x mag)
ccd tv (1 26 x mag)
laser range finder and designator
automatic target tracker
video recorder

Powerplant

| | |
|------------------------|-----------------------------|
| two turboshaft engines | LHTEC-T800 |
| take off power | 1335 shp each (996 kw each) |

| | |
|------------------------------|------------------------------|
| intermediate power | 1240 shp each (925 kw each) |
| one engine inoperative (OEI) | 1404 shp (1 045 kW) |
| contingency | |

performance (maximum mission gross weight of 5000 kg and at international standard atmosphere (ISA)

| | |
|--|-------------------------|
| hover in ground Effect | 13800 ft (4200 m) |
| hover out ground Effect | 10800 ft (3290 m) |
| maximum cruise Speed | 150 kts (278 kph) |
| vertical rate of Climb | 1070 ft/min (5.4 m/s) |
| maximum rate of Climb | 2220 ft/min (11 .3 m/s) |
| maximum Range, internal fuel, no reserve | 303 nm (561 km) |
| oei max rate of Climb | 900 ft/min (4.6 m/s) |



The A129 International is able to fire different types of point target missiles and area target rockets.



The Italian Army has 45 Mangusta helicopters which are being upgraded to the multi-role configuration.



The five-bladed A129 International has more powerful engines than the four-bladed Mangusta.



The HIRNS includes a mini FLIR

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