Sustaining Global Defence Productions

‘Sustaining Defence Production, and enhancing transfer of technology.’

Helicopter Catalog

T129 ATAK

T625 GOKBEY

T929 MULTIROLE HEAVY COMBAT HELICOPTER

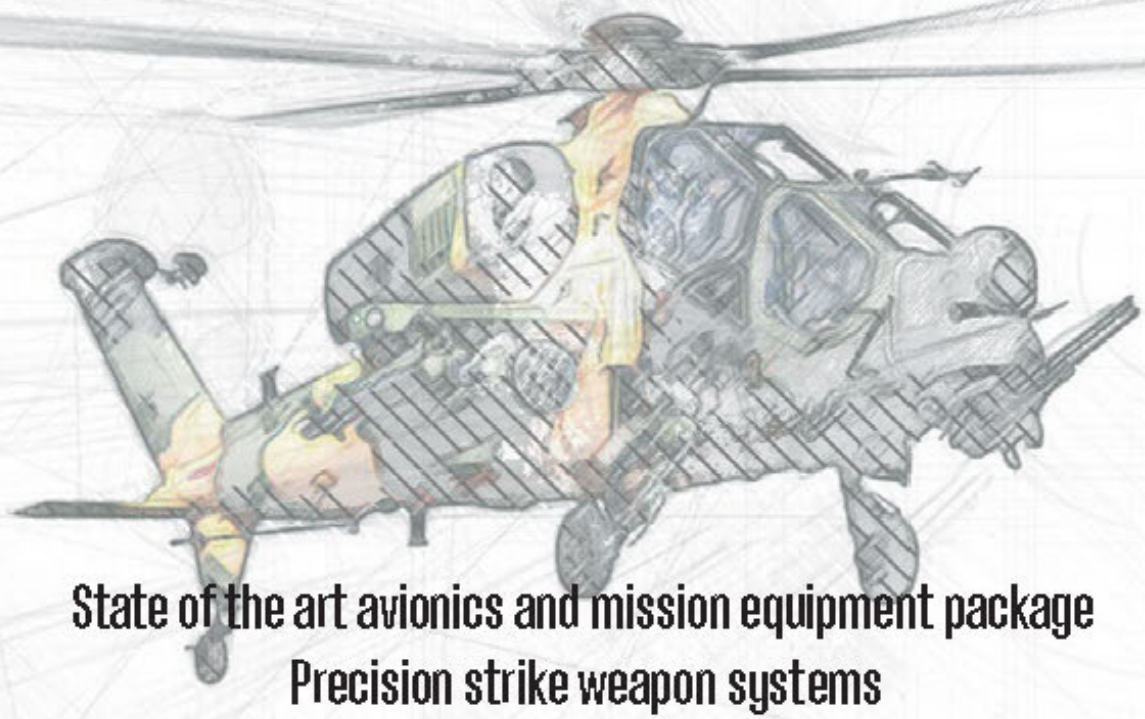
T925 MULTIROLE UTILITY HELICOPTER

T129 ATAK

T129 ATAK

Advanced Attack and Tactical Reconnaissance Helicopter

T129 ATAK is a combat proven, world class helicopter that has:



State of the art avionics and mission equipment package

Precision strike weapon systems

Hot & High performance

Day & Night, accurate navigation & targeting

Inherent survivability features

Low life-cycle cost

Maiden Flight
17 August 2011

First Delivery
22 April 2014

OVERVIEW

T129 ATAK has been optimized to meet and exceed the "Hot & High" performance requirements of Türkiye's harsh geographical and environmental conditions while providing the following key characteristics;

- Excellent situational awareness through good visibility arcs and fully integrated mission and communication systems.
- Eased crew workload through superior performance, agility and platform stability and handling qualities.
- Day & night all environment capability.
- Effective, precise weapon systems that provide combat superiority while low visual, aural, radar and IR signatures, high level of crashworthiness and ballistic tolerance provide high battlefield survivability.
- Reduced Operational Workload augmented by off-board Mission Planning System (utilizing data transfer device) and reduced Take-Off time.
- Low operating cost through effective design and on-condition maintenance.
- Ease of maintenance and high reliability figures make T129 ATAK maintainable and supportable, thus providing a high operational availability rate.

OPERATIONAL STATUS

END USERS

- Turkish Armed forces.
- Ministry of Interior
- Philippines Air Force

CURRENT STATUS

- 40,000+ Flight hours
- Full operational capability
- 75+ Deliveries

Roles / Tactical Capabilities

01 Attack

02 Armed Reconnaissance

03 Armed Escort

04 Precision Strike

05 Deep Strike

06 Fire Support

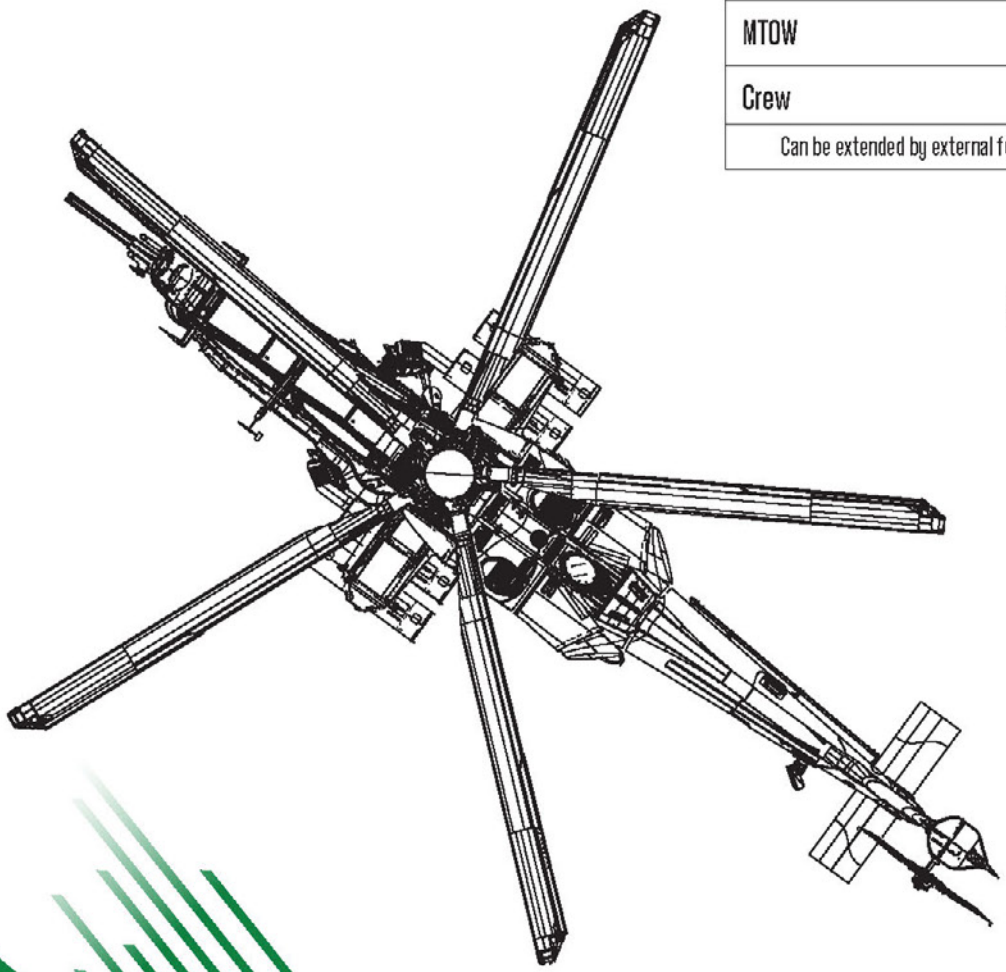
07 Suppression of Enemy Air Defense

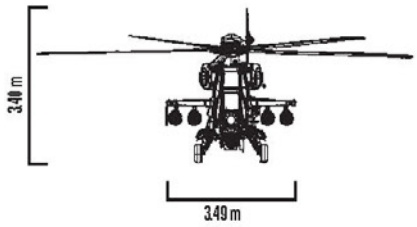
08 Security / Urban Warfare

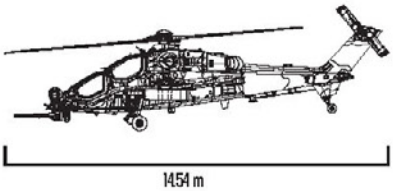
TECHNICAL DATA

DIMENSIONS / WEIGHT

Length	14.54 m	47.70 ft
Main Rotor Diameter	11.90 m	39.00 ft
Width	3.49 m	11.45 ft
Take-*Off* Power	2 x 1,024kW	2 x 1,373shp
Fuel Tank Capacity	762 kg	945 lt
MTOW	5,065 kg	11,166 lb
Crew	2 Tandem	
Can be extended by external fuel tanks.		







POWER PLANT

T129 ATAK has two LHTEC CTS800-4A turbo shaft engines with dual FADEC System providing low specific fuel consumption and of the exhaust high performance in hot, high and maritime conditions, while Infra-Red suppression exhaust provides protection against IR seeking threats.

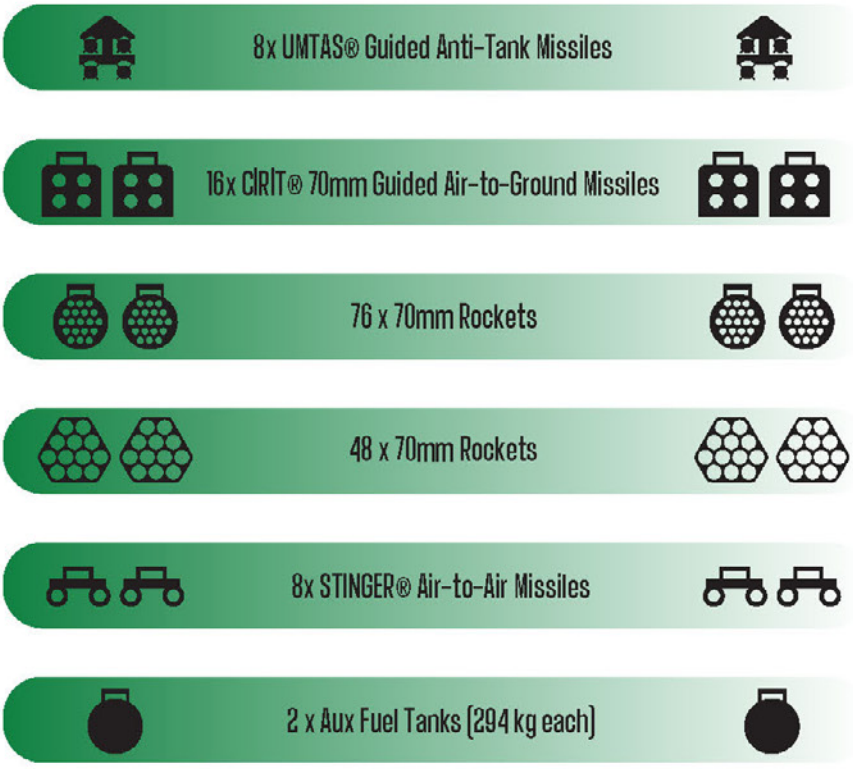
PERFORMANCE

Max Cruise Speed	281 km/h	152 knots
Hover IGE	4,572 m	15,000 ft
Hover OGE	4,221 m	13,850 ft
Rate of Climb	13.26 m/s	2,610 ft/min
Vertical Rate of Climb	7.3 m/s	1,430 ft/min
Service Ceiling	4,572 m	15,000 ft
Range (Std Tank)	537 km	290 nm
Endurance (Std Tank)	3 hrs	

@ AVERAGE MISSION WEIGHT, ISA-SEA LEVEL

WEAPON SYSTEMS

FOUR WING STORE STATIONS
ASYMMETRICAL LOADING CAPABILITY



Turreted Gun (20 mm) (500 Rounds)

GUN

20 mm Turreted Gun

20 mm 3-Barrel Cannon
Electrically Driven Turret
Slaved to Helmets or Sight Unit (FLIR)
500 Rounds
Computer Generated Aiming Corrections
Laser Pointer for NVG Operations
Adjustable Burst Capability

CLASSIC ROCKETS

2.75" (70 mm) Classic Rockets

Max. Range	>6 km
Min. Range	0.1 km
Guidance	Unguided
Mk40 & Mk66	

CIRIT®

Guided 2.75" Missile

Seeker	Semi-Active Laser
Warhead	High Explosive Anti-Armor
Range	8 km
Munition	Insensitive
Guidance	Midcourse Guidance with MEM-IMU Terminal Guidance with Semi Active LASER Seeker
Launcher	2x Rail 4x Rail

UMTAS®

Long Range Anti-Tank Missile

Seeker	Laser IIR
Warhead	High Explosive Tandem Warhead
Range	8 km
Modes of operation	Fire & Forget, Fire Observe and Update Steering Modes
Data Link	RF (Secure)
Munition	Insensitive
Launcher	2x Rail 4x Rail

STINGER®

AIR-TO-AIR Missile

Seeker	Passive Two Color IR/UV Detector
Range	1-5 km
Warhead	High Explosive
Mode	Fire and Forget
Launcher	2x Rail

TARGET ACQUISITION

Multiple Target Tracking (Thermal, TV, Spotter)

OBSERVATION AND TARGETING SIGHT UNIT (OTS)

- High resolution FLIR
- Color TV Camera
- Laser Range Finder / Designator
- Laser Spot Tracker

AVCI® HELMET

Helmet Mounted Display

- Targeting Sight and Turreted Gun Slaved to Helmet
- Visor Projected Day/Night Display
- 40° Binocular Field of View. 100% Overlap
- Integrated Display Capabilities
- Modular Integrated Image Intensifiers
- Optical Tracking System
- 4.85 lb (2.2 kg) max Head Supported Mass

SURVIVABILITY

AVOIDING DETECTION

- Low IR Signature
- Low Radar Signature

COUNTERMEASURES

- Missile Warning System
- Counter Measure Dispensing System (chaff, flare)
- IR Suppressor
- Radar Warning Receiver
- Radar Frequency Jammer (RF Jammer)
- Laser Warning Receiver

SUPPORTABILITY

- Strategic transportability (A400M, C-130, C-160 aircraft)
- Extended use of inspection panels for accessibility
- Interchangeable Rotor Blades
- Calibration and adjustments not required at first level
- Pre-flight checks can be performed by servicing personnel or by crew in less than 10 minutes in battlefield environment
- On board "Built in Test" to reach the "On Condition" goal
- High availability rates for reliability and maintainability
- Validated ILS

- Two Level Maintenance Concept
- Low Operating Cost
- Minimized Ground Support Equipment
- Pilot and Maintenance Training
- No boresight procedure required at wing weapon reconfiguration
- Wing weapon rearming in less than 15 minutes
- Technical Support at User Bases

INTEGRATED LOGISTICS SUPPORT

Integrated Logistics Support (ILS) aims to maximize operational readiness and to minimize life cycle cost by providing and maintaining logistics support elements timely and properly during the life cycle of T129 ATAK Helicopter.

Integrated Logistics Support of T129 ATAK Helicopter contains pilot and maintenance personnel training, delivery/update of technical publications, technical support, provisioning of spare parts and ground support equipment, warranty management, facility requirements support and life cycle support of T129 ATAK Helicopter.

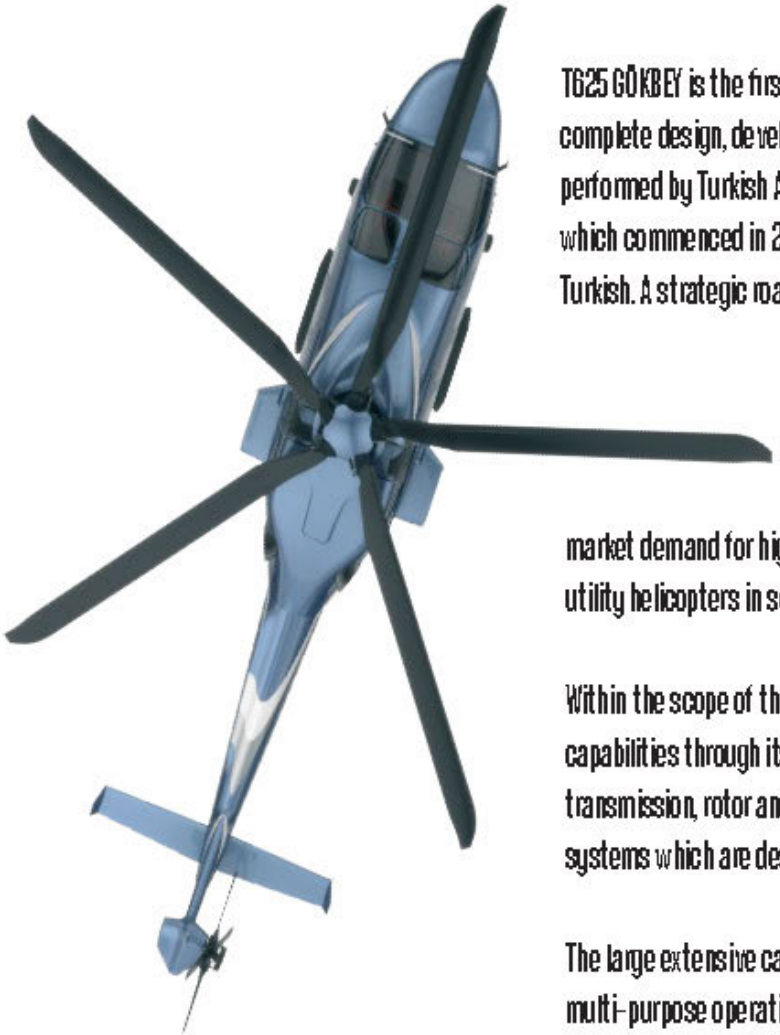
T625GÖKBEY

T625GÖKBEY

Multirole Utility Helicopter

T625 GÖKBEY is designed and optimized to meet and exceed the multi-mission requirements for hot & high geographical environments and for adverse weather conditions. The helicopter incorporates several new technology features to provide the highest levels of safety and operational benefits for operators.

PRODUCT OVERVIEW



T625 GÖKBEY is the first home-grown, indigenous helicopter of Türkiye; the complete design, development, test and certification of T625 GÖKBEY is being performed by Turkish Aerospace. The helicopter is in its serial production stage, which commenced in 2022, with all of its major/critical sub-systems being originally Turkish. A strategic roadmap is also in work for developing an indigenous T625 GÖKBEY engine by Turkish Aerospace subsidiary TEI (TUSAŞ Engine Industries).

T625 GÖKBEY Multirole Helicopter is a new generation, twin engine, 6-ton class helicopter developed in response to the growing market demand for higher mission flexibility in this class. It will replace 200+ single engine utility helicopters in service of military agencies in Türkiye.

Within the scope of the T625 GÖKBEY Program, Turkish Aerospace is now gaining new capabilities through its responsibilities on the dynamic systems of the helicopter such as transmission, rotor and retractable landing gears as well as aerostructures and avionics systems which are designed from scratch.

The large extensive cabin space can be configures to meet the requirements of multi-purpose operations such as cargo, VIP transportation, ambulance, off-shore and search & rescue operations thanks to its extensive payload capacity. The geometry of the helicopter is optimized for maximum aerodynamic performance with retractable landing gears hence providing an efficient fuel consumption leading to better range and endurance.

The first prototype of T625 GÖKBEY aircraft has successfully performed its first flight on 6th of September 2018 at Turkish Aerospace facilities Ankara, Türkiye.

After the completion of extensive testing on the first and second prototypes of the T625 GÖKBEY, the second prototype made its 45-minute long maiden flight on June 29, 2019, fulfilling the first domestic certification milestone presented to the Turkish General Directorate of Civil Aviation.
Civil certification process of the T625 GÖKBEY will continue incrementally as the low rate initial serial production has already started in 2022 for governmental agencies.

CIVIL

MILITARY

VIP

SEARCH & RESCUE

AIR AMBULANCE

OFF-SHORE

ROLES and KEY FEATURES

Roles

- Transportation
- Cargo
- Off-Shore
- VIP
- Air Ambulance
- Search & Rescue
- Firefighting

Key Features

- Hot & High Performance
- Multi Mission Capability
- Large Cabin Space
- Comfortable Glass Cockpit with Advanced Avionics
- Retractable Landing Gear
- Easy Maintenance
- Sustainable Life Cycle Support
- Cost Effective Life Cycle Support

VARIANTS

T625 GÖKBEY is designed to be a 6 ton conventional type helicopter , with civil, military and paramilitary variants. The military variant will be based on civil version incorporating military equipment and mission systems.

- Civil variants will be used for passenger, cargo and VIP transportation, offshore missions and air ambulance purposes.

- Military/paramilitary variants will be used as utility helicopter for personnel and cargo transportation. VIP/Command and control, casualty evacuation, medical evacuation, observation/rescue, search & rescue and training purposes.

CIVIL

T625GÖKBEY

Multirole Utility Helicopter

Civil passengers seats

General view of civilan passengers seats layout

T625GÖKBEY MILITARY

Multirole Utility Helicopter

General view of the military crew seats

Military crew seats

T625GÖKBEY

Air Ambulance

Multirole Utility Helicopter

T625GÖKBEY

VIP

Multirole Utility Helicopter

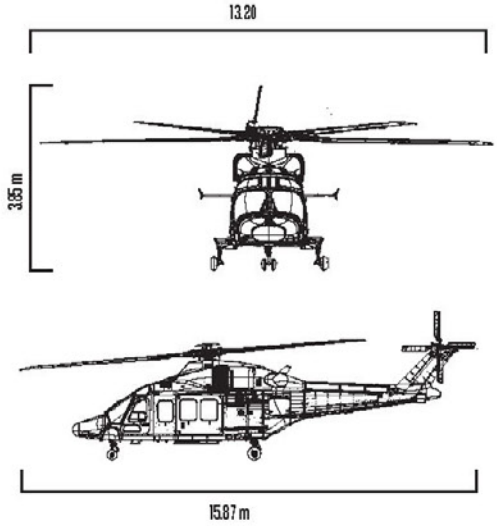
T625GÖKBEY

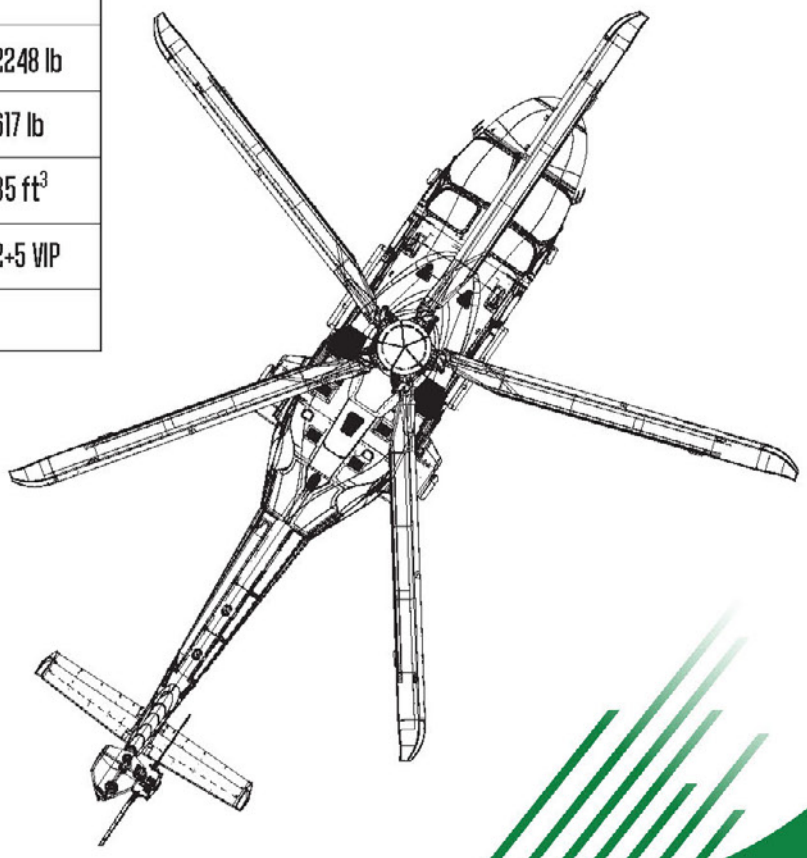
COAST GUARD

Multirole Utility Helicopter

TECHNICAL DATA

Max Cruise Speed	306 km/h	165 kts
Service Ceiling	6096 m	20000 ft
Range	740+ km	400+ nm
Endurance	3.8+ Hours / 5+ Hours	
Main Rotor Diameter	13.20 m	43 ft
MTOW	6050 kg	13337 lb
Engines	LHTEC CTS-800 4AT 2 x 1024 Kw 2 x 1373 SHP	
Standart Fuel Tank Capacity	1020 kg	2248 lb
Auxiliary Fuel Tank Capacity	280 kg	617 lb
Cargo Bay Volume	1.1 m^3	35 ft^3
Crew	2+12 Pass	2+5 VIP
*With auxiliary fuel tank		





COCKPIT

T625 GÖKBEY has state-of-the-art Turkish avionics with glass cockpit having two wide touchscreen (8x20 inches) Integrated Modular Displays and two touch screen (8x10 inches) data entry Touch Cockpit Control Unit. A 4-axis dual redundant automatic flight control system is developed by Turkish Aerospace to provide superior performance and handling quality. All avionic computers including software are designed and developed by Turkish Companies that enables provisioning of all customer requested modifications.

AVIONICS

Communication System

- VHF Radio
- Intercom System (ICS)
- ELT

Indication and Recording System

- Control Panels and Grips
- Clock
- CVFDR
- Master Warning Caution Panel (MWCP)
- Multi-Function Slew Controller (MFSC)

Tactical Communication System

- V/UHF Radio
- HF Radio
- MILSEC (Crypto Device)

Surveillance System

- CATS-B
- DF/PLS

Navigation System

- EGI/AHRS
- ADC
- ESIS
- Standeby Compass
- VOR/ILS/GS/MB/ADF
- Weather Radar
- Mode-S Transponder
- Digital Map (TAWS included)
- Radar Altimeter
- TCAS II

System Integration and Display System

- Integrated Modular Display (IMD-820)
- Touch-screen Cockpit Control Unit (TCCU)
- Data Concentrator Unit (DCU)

Electronics Warfare System

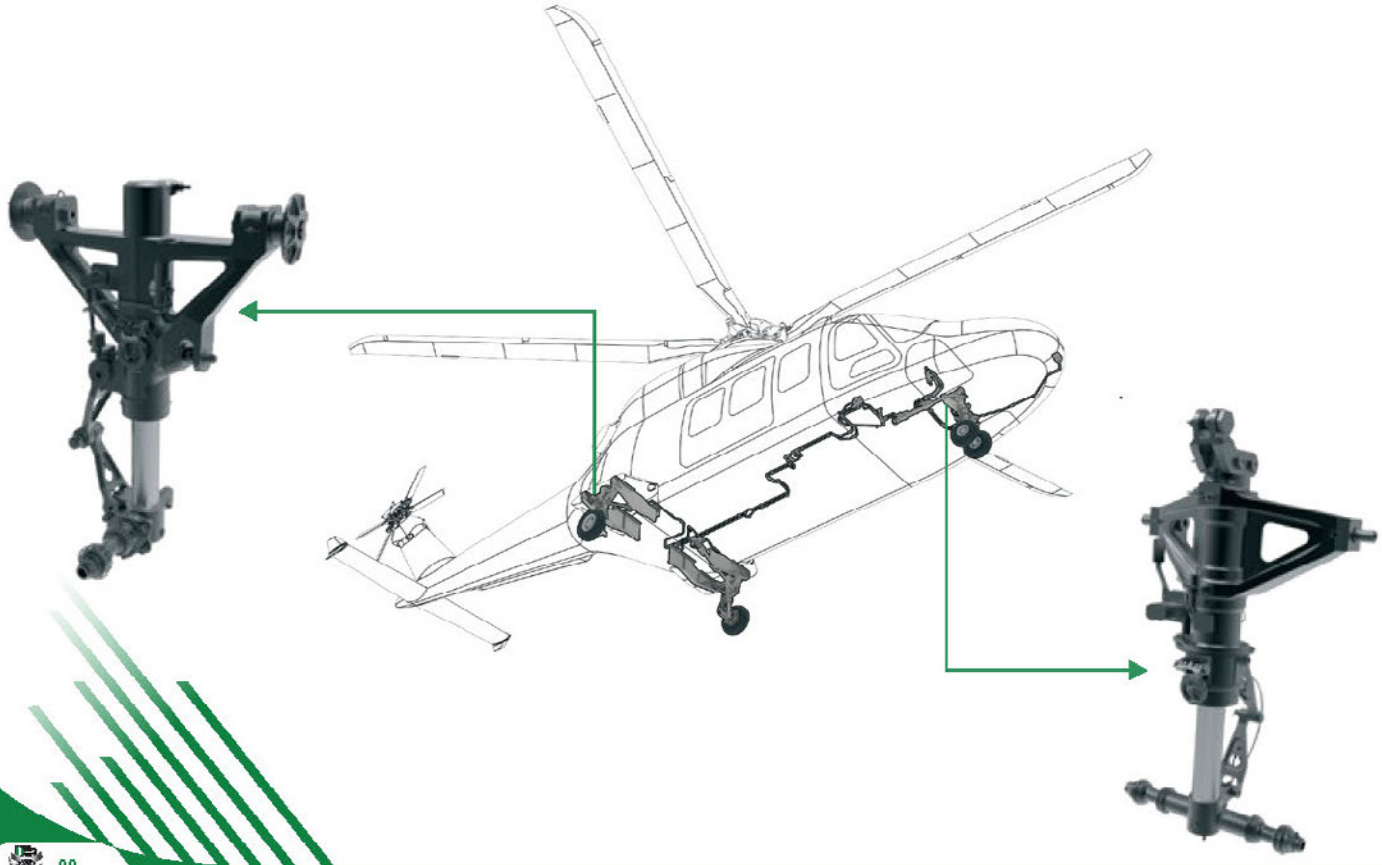
- Suite Central Processor Unit (SCPU)
- Countermeasure Dispenser System (CMDS)
- Missile Warning System (MWS)

Suit Central Processing Unit (SCPU)

LANDING GEAR

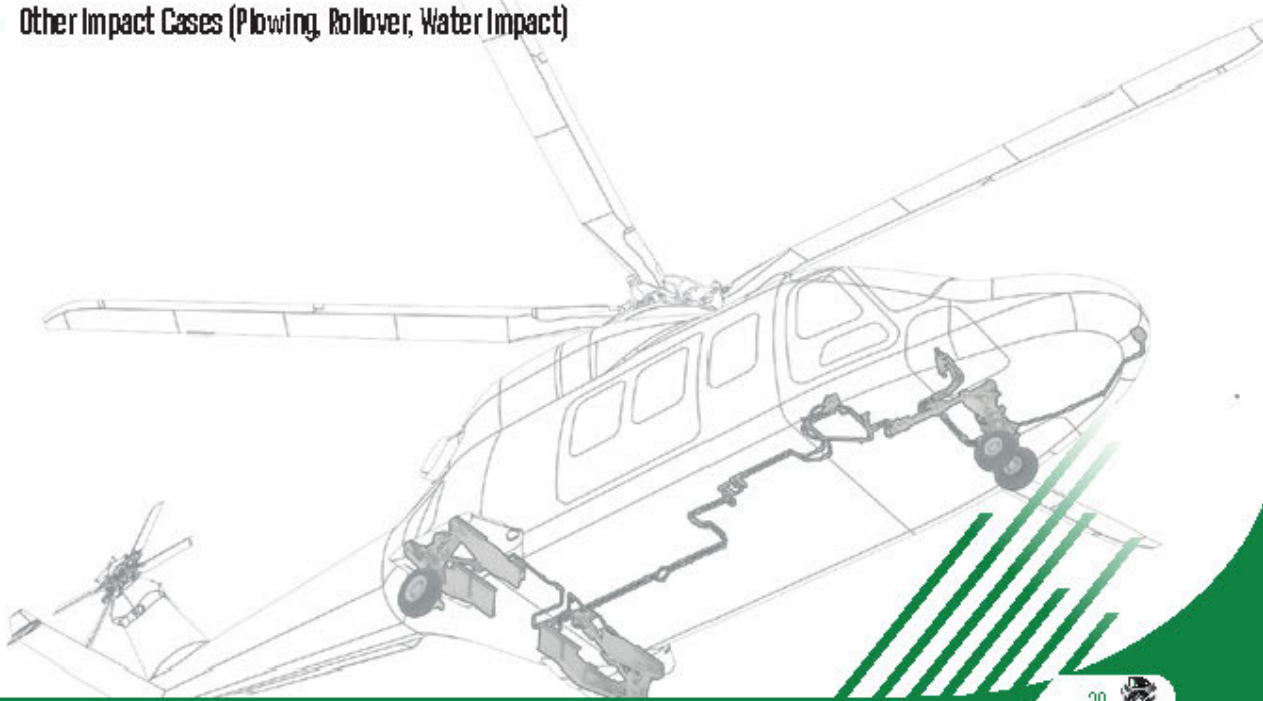
Retractable type landing gears with hydraulic actuators in a nose wheel configuration are incorporated on T625 GÖKBEY Multirole Utility Helicopter. Oleo-pneumatic shock absorbers are utilized in the landing gear design. Landing gears have the emergency extension capability and can also be locked up/down.

- Oleo-pneumatic shock absorbers
- Ability of the nose landing gear to center itself after the take-off
- Nose landing gear is locked at the central position via electro-mechanical actuator
- Steering via differential braking of the main landing gears
- Integrated shimmy damper within the Nose landing gear
- Including mooring interface compatible to MIL-T-81259
- Including towing interface compatible to MIL-A-8863



Crashworthiness Features

- Airframe Design as Protective Shell, Emergency Egress (CS-29.561, CS-29.803, CS-29.809, CS-29.783)
- Crashworthy Seat and Restraint System Design (CS-29.562, CS-29.785)
- Delethalization of Interior Design, Ancillary Equipment CS-29.787, CS-29.1457, CS-29.1459)
- Crashworthy Fuel System Design CS-29.952, CS-29.973, CS-29.975)
- Structural Integrity against Bird Impacts (CS-29.631)
- Vertical Impact Velocity of 26 ft/s
- Longitudinal Impact Velocity of 10 ft/s
- Lateral Impact Velocity of 10 ft/s
- Other Impact Cases (Plowing, Rollover, Water Impact)

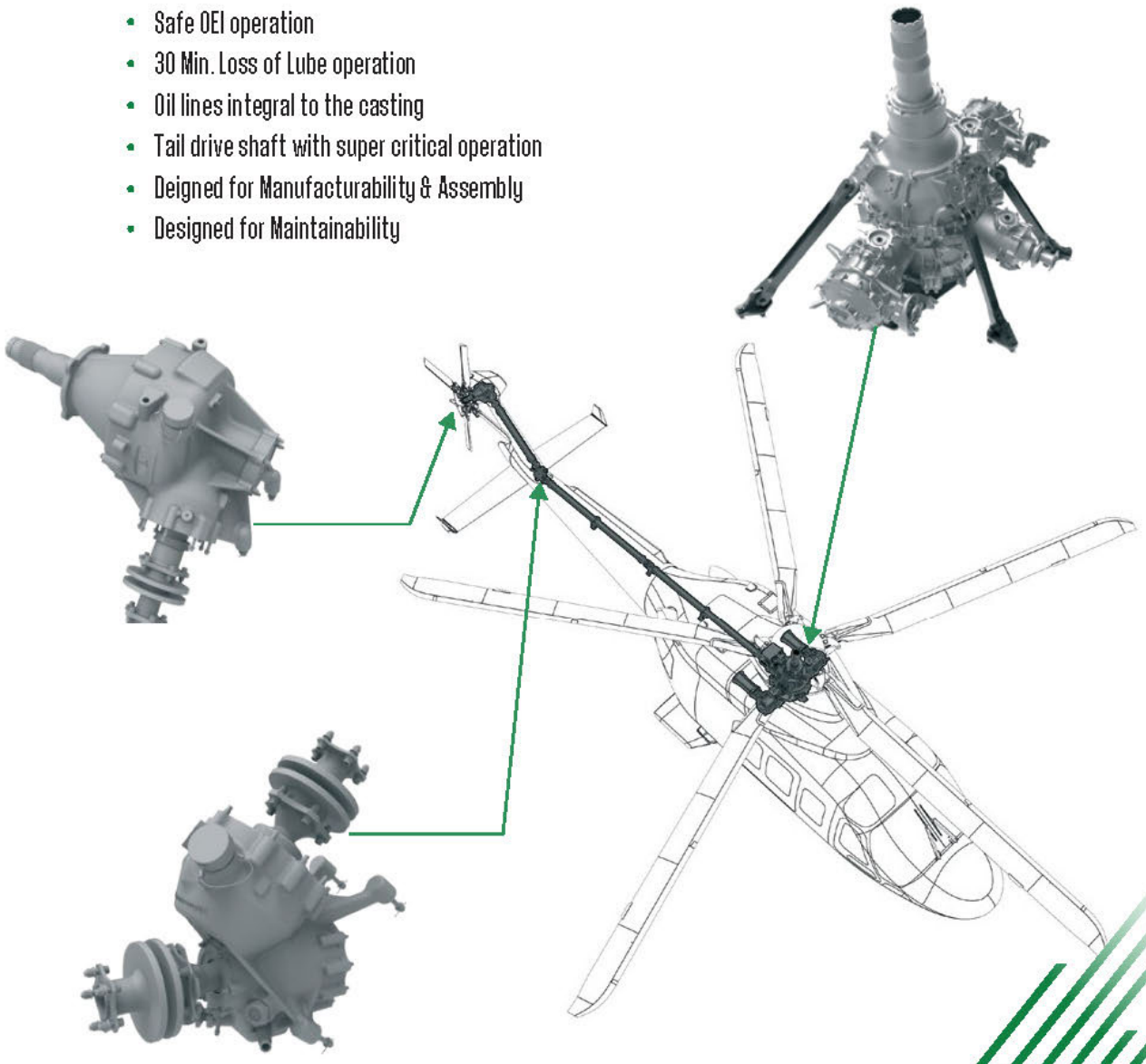


ROTOR DRIVE SYSTEM

T625 GÖKBEY is provided with a 5-blade main rotor and 4-blade tail rotor systems. Both main and tail rotor hubs are based on proven design solutions in order to accommodate military manoeuvrability, efficiency and maintainability requirements; thanks to fully-articulated rotor design with elastomeric bearings. An intermediate gearbox provides reduction of speed in between the main gearbox an the tail gearbox. All blades are manufactured by using advanced composite materials and 5-bladed and 4-bladed articulated systems are attached to a titanium forged hub.

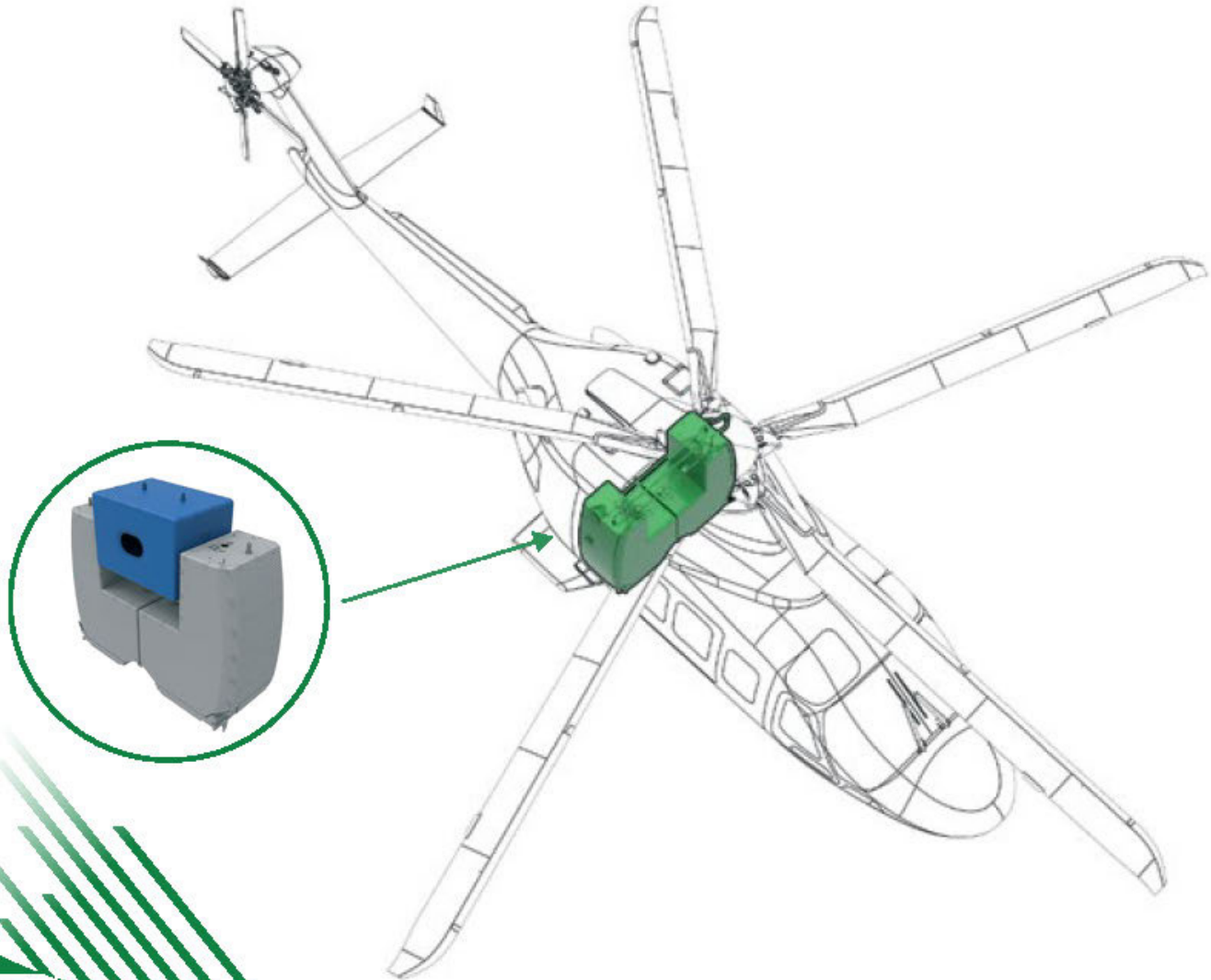
MAIN GEARBOX FEATURES

- 3 Stages with high speed inputs
- Safe autorotation with freewheels
- Safe OEI operation
- 30 Min. Loss of Lube operation
- Oil lines integral to the casting
- Tail drive shaft with super critical operation
- Deigned for Manufacturability & Assembly
- Designed for Maintainability



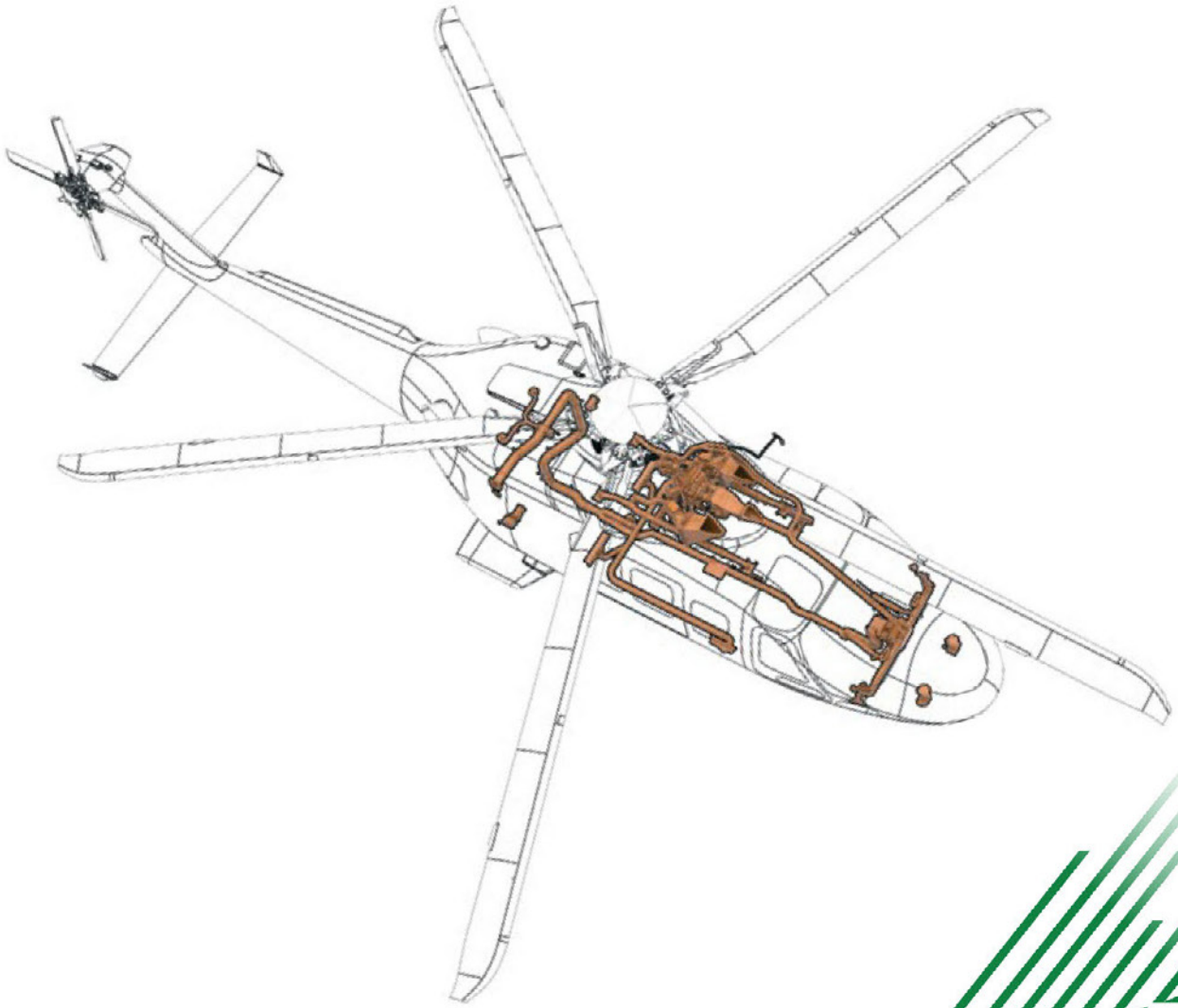
FUEL SYSTEM

Bladder type high capacity main fuel tanks with extensive crashworthy features are installed on T625 GÖKBEY to ensure maximum safety requirements. Refueling is performed as single point refueling and tanks can be refueled by both gravity and pressure. Fuel level probes are capacitive type and crossed vent lines prevent any leakage during flight. Optional auxiliary fuel is also available.



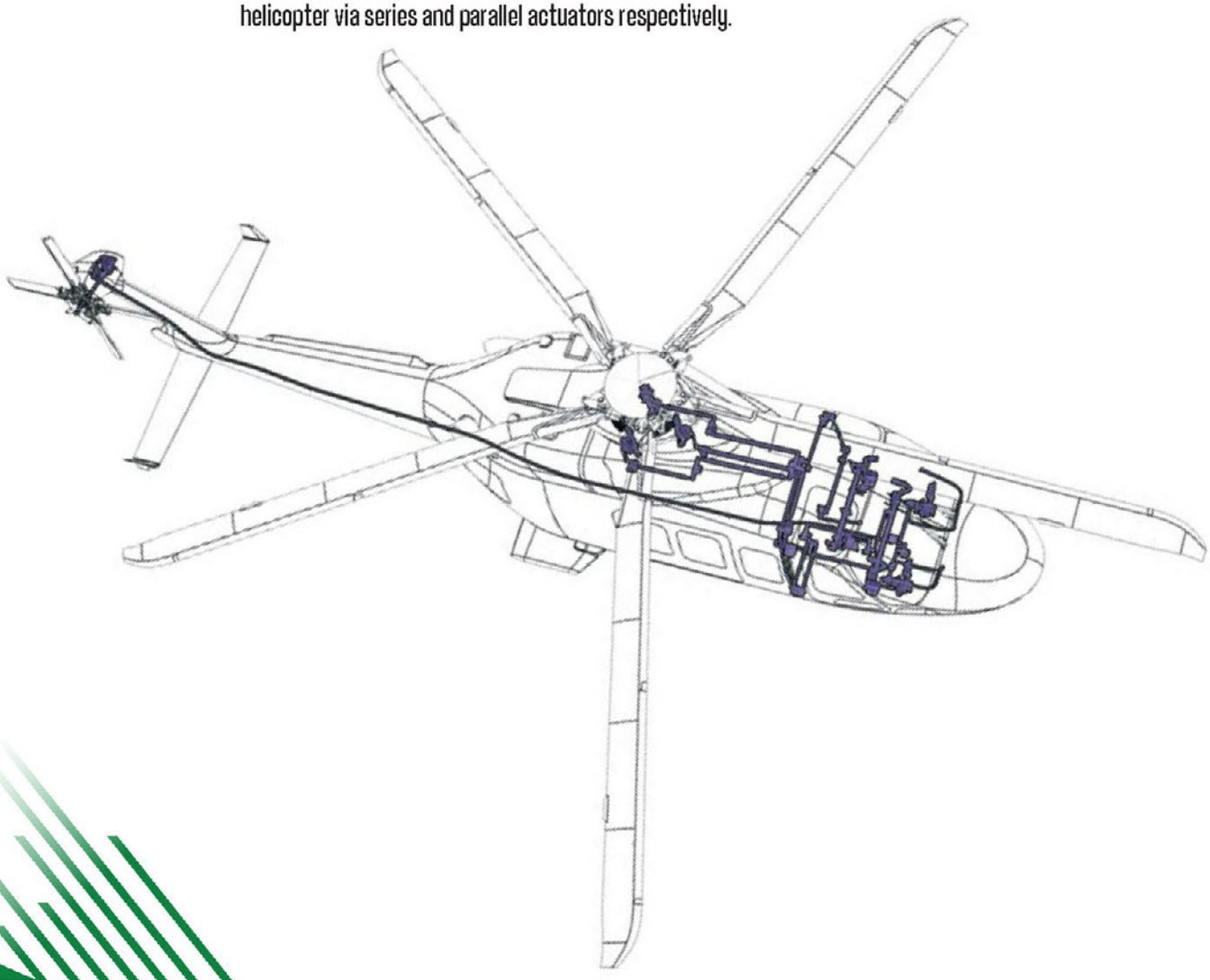
ENVIRONMENTAL CONDITIONING SYSTEM

Environmental conditioning system incorporated on T625 GÖKBEY can be utilized both manually and automatically and provides ventilation, heating and cooling for 14 occupants through common and personal air outlets.



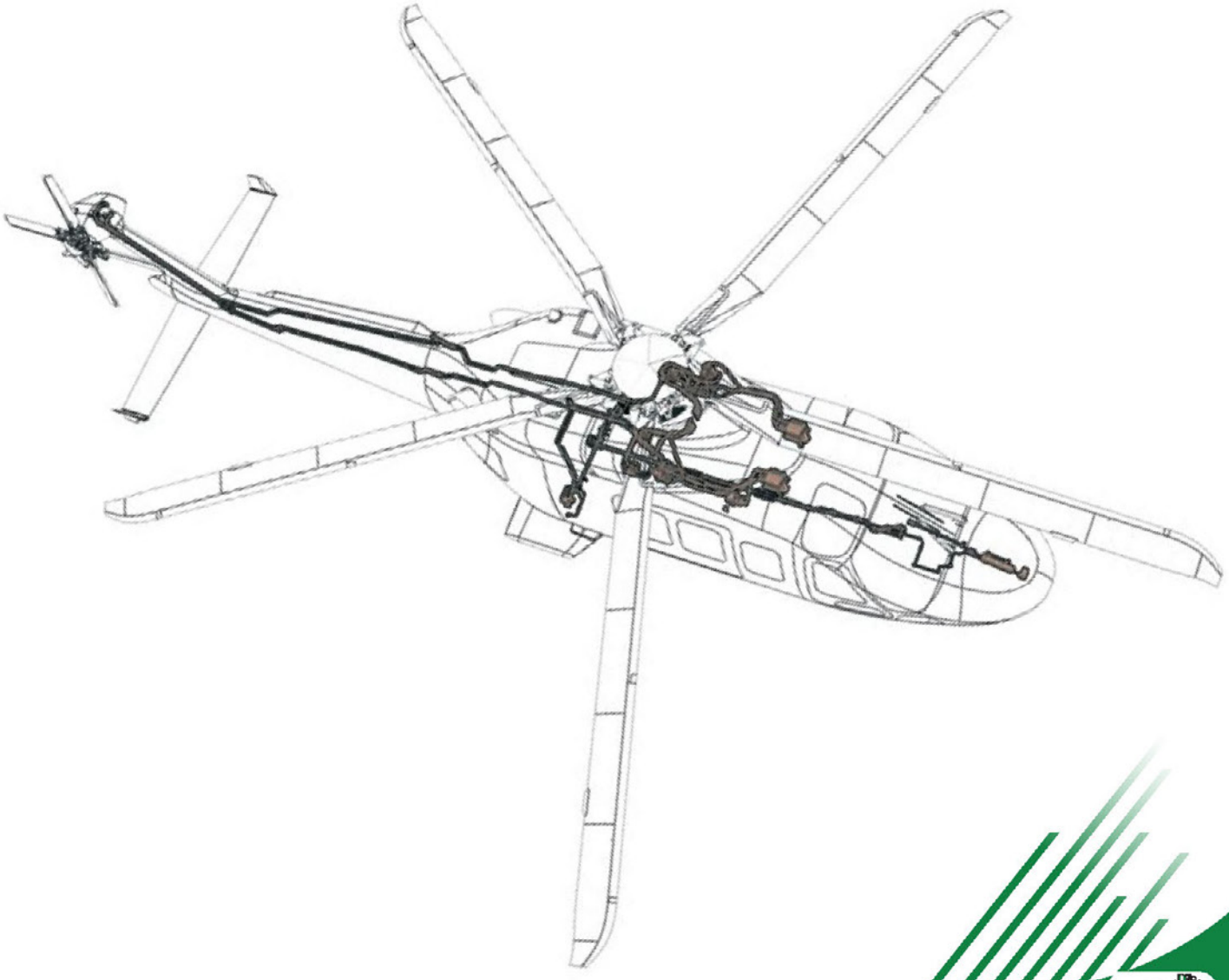
ROTOR FLIGHT CONTROL SYSTEM

RFCS is a conventional type mechanical system consisting of a combination of rods, bellcranks, and ball bearing control cables. It is also an irreversible type power-operated control system which interfaces with Hydraulic Power System (HPS) for power acutation controls and with Automatic Flight Control System (AFCS) for automatic stabilization and guidance of the helicopter via series and parallel actuators respectively.



HYDRAULIC SYSTEM

Hydraulic Power System consists of two independent subsystems which operate simultaneously under normal operating conditions. The hydraulic system provides pressure to three main rotor servo actuators, one tail rotor servo actuator, auto flight control system SCAS actuators and landing gear retraction actuators.

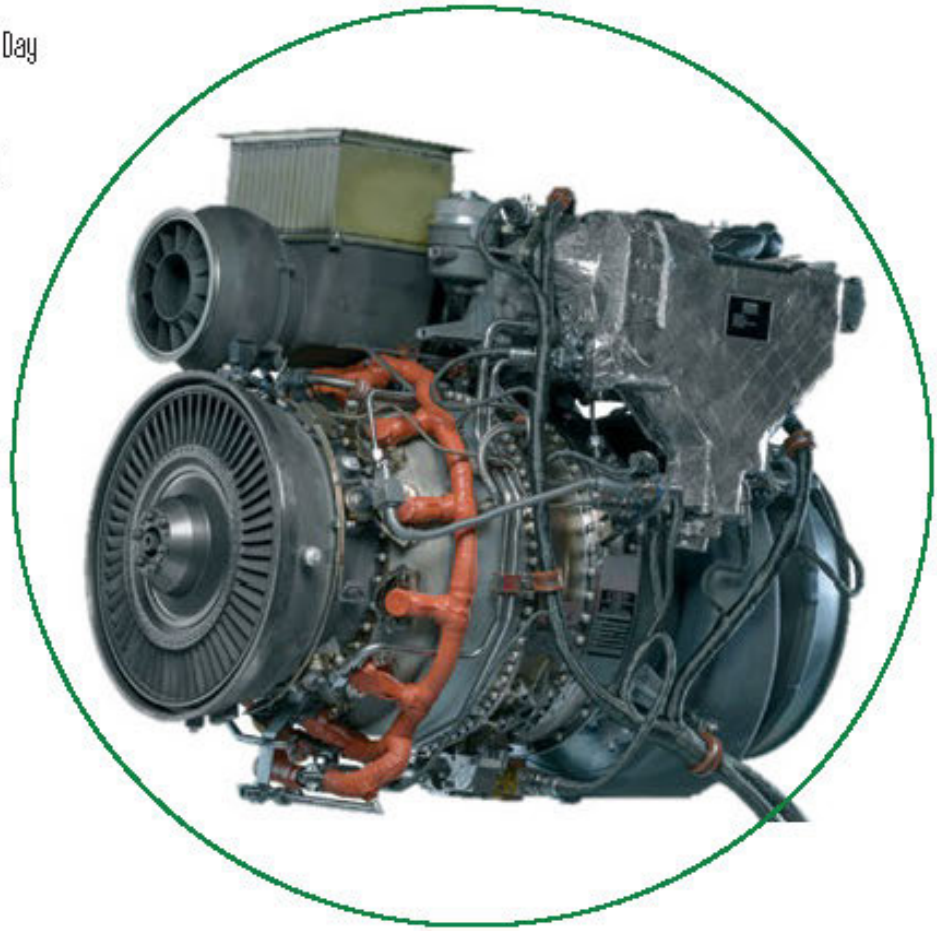


ENGINE

The first prototypes of the T625 GÖKBEY included 2 LHTEC CTS800-4AT turbo shaft engines (2x 1373 shp) with dual channel FADEC System;

Features

- Turboshaft engine with dual channel FADEC system
- Take-off Power at Sea Level Standart Day
  1373 shp
- One Engine Inoperative Power (30 sec)
  1637 shp
- Service ceiling
  20,000 ft
- Output Shaft Speed
  23000 rpm
  164kg



MAINTENANCE

Turkish Aerospace has logistics support center facility for all product support activities and serves as a SHY/JAR 145 Authorized Maintenance Organization for continued airworthiness. Our Integrated Logistics Supports (ILS) aims to maximize operational readiness and to minimize life cycle cost by providing and maintening logistics support elements on time and properly.

T929

MULTIROLE HEAVY COMBAT HELICOPTER

T929

Multirole Heavy Combat Helicopter

T929 helicopter is designed to meet and exceed the Hot&High performance requirements of Türkiye's harsh environment with an exceptional ammunition payload capacity

OVERVIEW

From the producer of T129 ATAK and T625 GÖKBEY helicopters, here comes a next generation though aggressive combat machine; namely T929.

Legendary field performance and stunning technology development capability of Turkish Aerospace are now merged in a new breathtaking attack helicopter.

In order to fulfill demands for an ITAR free, high payload capable, hot&high performing and advanced mission technology platform; Turkish Aerospace has recently launched T929 development program.

OPERATIONAL STATUS

END USERS

- Turkish Land Forces
- Turkish Navy

CURRENT STATUS

- Manufacturing started

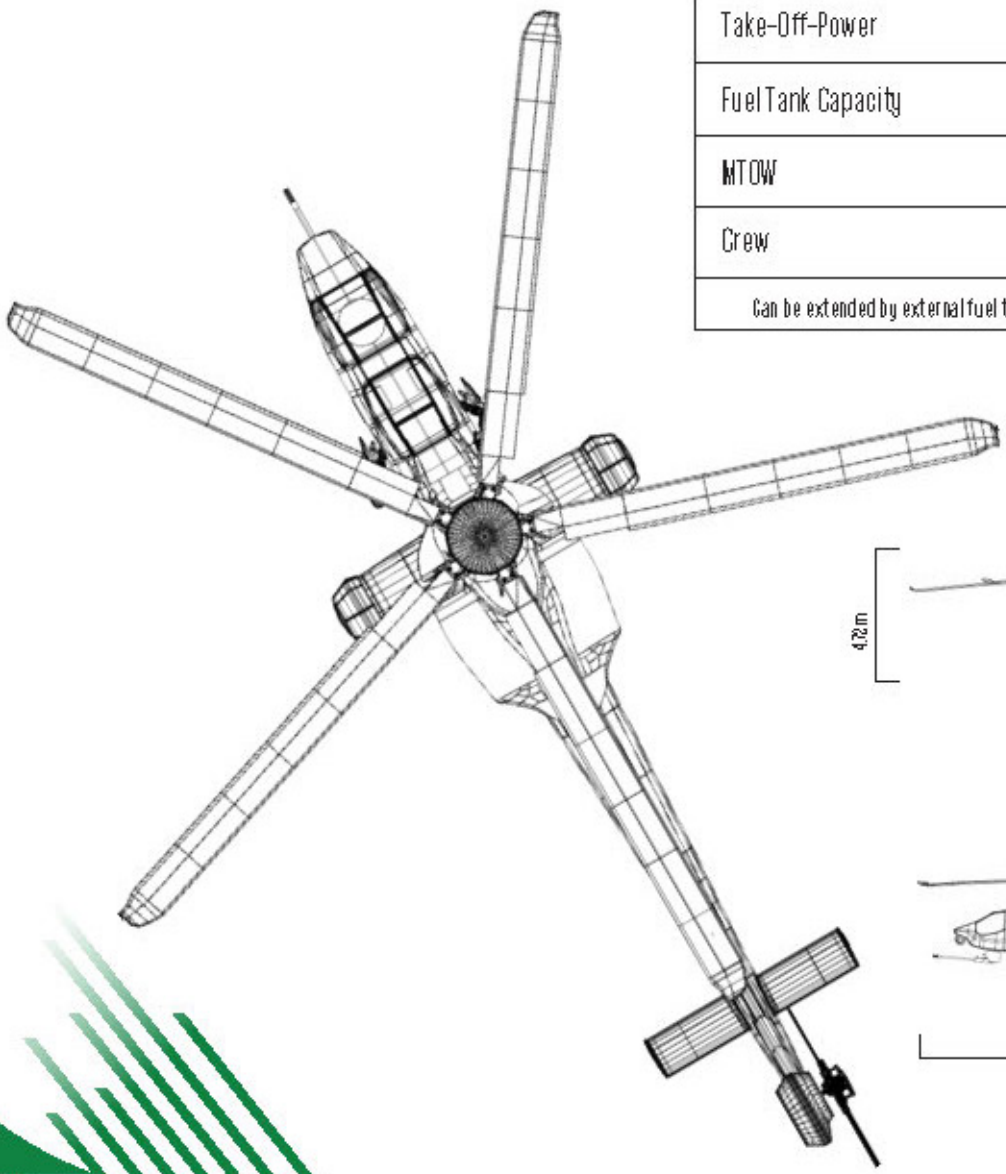
Roles/Tactical Capabilities

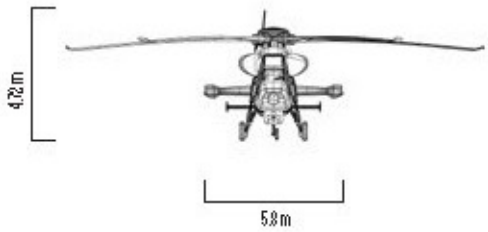
- Attack
- Armed Reconnaissance and Observation
- Armed Escort
- Closed Air Support
- JAAT Operation
- Precision Strike

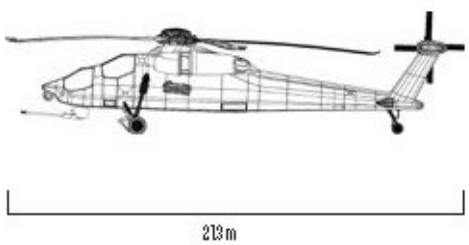
TECHNICAL DATA

DIMENSIONS/WEIGHT

Length	21.3 m	69 ft
Main Rotor Diameter	17.3 m	56.7 ft
Width	5.8 m	19.02 ft
Take-Off-Power	2 x 1.864 kW	2 x 2.500 shp
Fuel Tank Capacity	1.710 kg	2.137 lt
MTOW	11.500 kg	25.350 lb
Crew	2 Tandem	
Can be extended by external fuel tanks.		







POWER PLANT

T929 has two MotorSich TV3-117VMA-SBM1V Series 1 turboshaft engines with dual channel FADEC system, providing high performance in hot, high and maritime conditions. T929 will be equipped with IR suppression exhaust for protection against IR seeking threats.

PERFORMANCE

MTOW	11.500 kg
Speed VNE	172 Kts
Range	250 nm 6000 ft / ISA+30 / MTOW
Endurance	2.6 Hrs 6000 ft / ISA+30 / MTOW
High Temp. & High Alt. Ope.	HOGE 6000 ft / ISA+30 / (%97) MTOW

WEAPON SYSTEMS

SIX WING STORE STATIONS
ASYMMETRICAL LOADING CAPABILITY

Mission Payload Capacity: 1530 kg

- 16x UMTAS Guided Anti-Tank Missiles
- 24x CİRİT 70mm Guided Air-to-Ground Missiles
- 100 x 70mm Rockets
- 12x STINGER® Air-to-Air Missiles
- 2 x BOZDOĞAN Air-to-Air Missiles (Within Line of Sight)
- 4 x Aux Fuel Tanks (300 kg each)
- 330 mm Turreted Gun with 750 round capacity
- Air Launched UAV's

TARGET ACQUISITION

Multiple Target Tracking (Thermal, TV, Spotter, Radar)

Targeting Sight Unit

- High resolution FLIR
- Color TV camera
- Laser Range Finder / Designator
- Laser Spot Tracker

Milimeter Wave Radar

- Multiple Target Tracking
- Low Probability of Intercept (LPI) Feature
- Frequency Hopping
- Terrain Profiling
- Long Range and High Angular Resolution

SURVIVABILITY

- Low IR Signature
- Low Radar Signature
- IR SuppressorLong Range and High Angular Resolution
- EW Systems

- Missile Warning system
- Counter Measure Dispensing System (Chaff/Flare)
- Radar Frequency Jammer
- Radar Warning Receiver
- Laser Warning Receiver
- Infrared Counter Measure System (IRCM)
- Directed Infrared Counter Measure System (DIRCM)

T925

MULTIROLE UTILITY HELICOPTER

T925

Multirole Utility Helicopter

Continuous accumulation of technology and creation of domestic indigenous capability in helicopter field during T129 ATAK, T625 GÖKBEY and T929 Heavy Class Attack Helicopter development programs enabled Turkish Aerospace to initiate derivatives of obtained capabilities on various platforms. The outcome is the evolution of T925 Utility Helicopter Program, which stared in 2021 to develop an export license free Utility Helicopter.

OVERVIEW

Turkish Aerospace adopted the methodology to develop the indigenous utility helicopter (named T925) around the gained experience of current T929 Heavy Class Attack Helicopter where powertrain, fuselage, landing gears, mission/avionic systems and other major subsystems have been developed.

T925 Utility Helicopter will be powered by TV3-117VMA-SBM1V turboshaft engine with the same powertrain and subsystems of T929 Helicopter. T925's maiden flight is planned for March 2024.

Large cabin area with a ramp door can be configured for civilian passengers, military personnel, air ambulance and VIP. Cabin area and the ramp is sized to carry 19 military personnel and support equipment.

OPERATION STATUS

END USERS

- Turkish Armed Forces
- Turkish Police Department
- Directorate General of Forestry
- Ministry Of Health

CURRENT STATUS

- Detail Design activities started

ROLES/TACTICAL CAPABILITIES

- Transportation
- Cargo
- Search & Rescue
- Firefighting
- Air Ambulance
- Specialized Missions

POWER PLANT

T925 has two Motorsich TV3-117VMA-SBM1V Series 1 turboshaft engines with dual channel FADEC system, providing high performance in hot, high and maritime conditions. T925 military version will be equipped with IR suppervision exhaust for protection against IR seeking threats.

PERFORMANCE

MTOW	> 12.000 kg
Speed VNE	> 165 Kts
Range	> 300 nm 6000 ft / ISA+30 / MTOW
Endurance	3 Hrs 6000 ft / ISA+30 / MTOW
High Temp. & High Alt.Ope.	HOGE 6000 ft / ISA+30 / (>%95) MTOW

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