

TITRA

**WE EXCEED THE LIMITS
USING THE POWER OF TECHNOLOGY**



TURKIYE'S FIRST UNMANNED HELICOPTER


ALPIN



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“FLYING INTELLIGENCE” AGAINST TIME AND CONDITIONS

ALPIN, which can take off and land autonomously, is a unique “flying intelligence” was designed to perform challenging missions by flying over the targets.

We continue our Unmanned Helicopter Project, which was started in 2019, in our production facility with our ever-growing team. ALPIN, which can carry a payload of 200 kgs and stay in the air for 9+ hours, is on mission.

Always chasing new ideas...

A superior platform with high pay-load carrying capacity, vertical take-off and landing capability.



**For flying beyond... From the past to the present,
to the rising future...**

2019

R&D // Determination of the need in the market.
Beginning of R&D studies

2020

PROTOTYPE // Completion of first unmanned helicopter assembly and conducting the first demonstration flight in December

2021

FIRST MISSION // Mission flights with General Directorate of Forestry during Manavgat Forest Fires

2022

MASS PRODUCTION // Establishment of a production facility under a 6000m² roofed area

2022

COLLABORATIONS // Expanding capacity with overseas distribution channels and business partnerships

ON MISSION TODAY

A service ceiling of 21.000ft, a cargo capacity of 200kgs and a flight duration of 9+ hours make ALPIN Türkiye's first and only operational unmanned helicopter.

“ENGINEERING GENIUS” IN UNMANNED TECHNOLOGY



9+ flight hours thanks to its increased fuel capacity



21.000ft service ceiling and 200km control radius



Real Time video and image transfer



Payload capacity up to 200 kg.



Take-off and landing capability without a runway



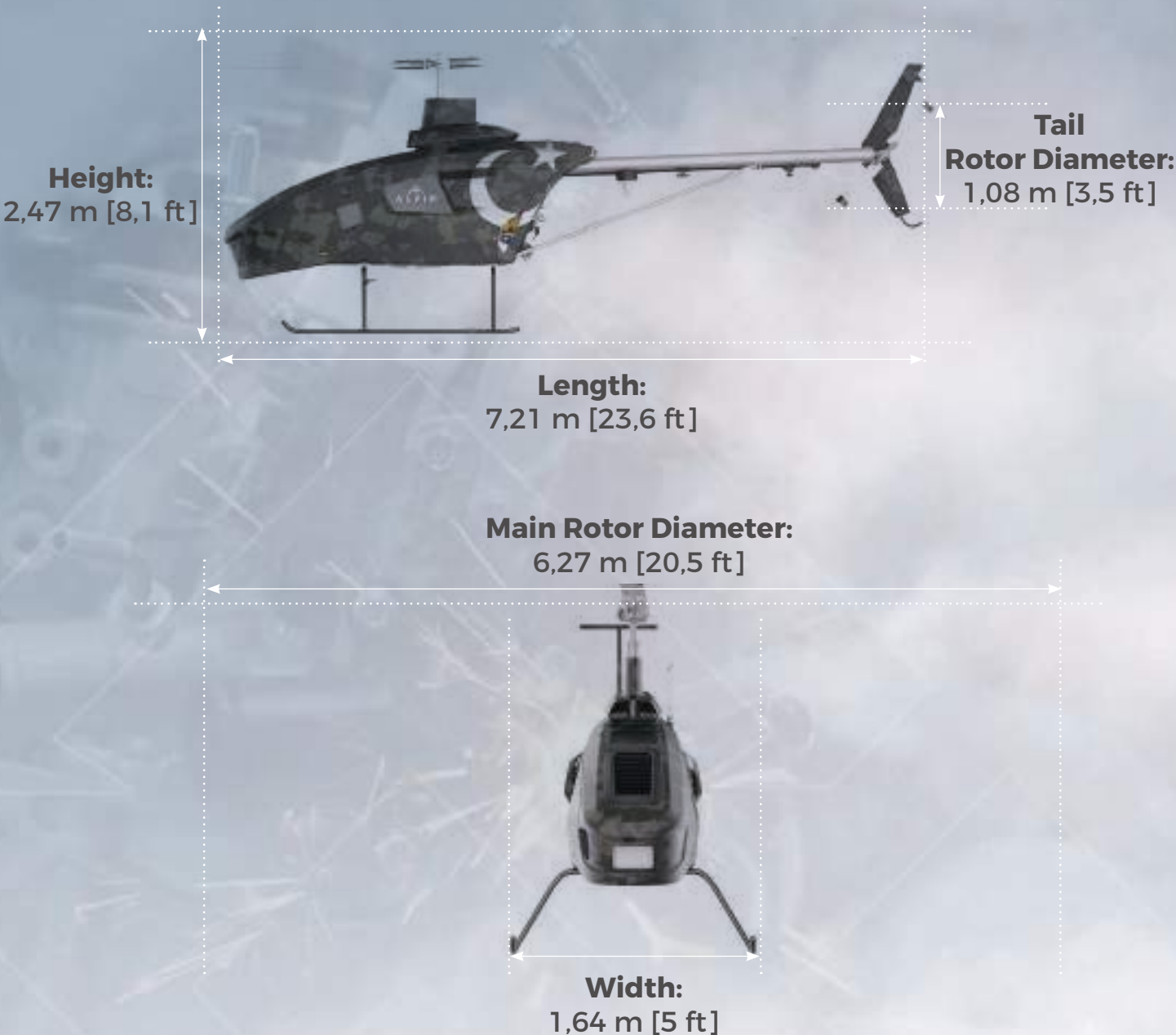
Different payload integrations capability according to operational needs.



RON 95 Fuel



TECHNICAL SPECIFICATIONS



Communication Capabilities

Range 200 km
Frequency Band L/S BAND
Data Encryption AES 256

Control Capabilities

- Fully autonomous
- Take-off
 - Landing
 - Navigation
- Semi-autonomous control with automatic stabilization
- Advanced RTL features
- Real time mission planning (100+ waypoints)
- Real time parameter monitoring
- Real time health monitoring
- Inertial Navigation System (INS)
- Redundant autopilot system

Parachute System

Cargo Bay
Up to 200kg payload

Powerplant System
130hp / Gasoline 95 Octane

Avionic Systems

Datalink/Videolink
GNSS-Antijam CRPA System
IFF/Transponder
SATCOM

VHF Airband Communication
Radar Altimeter
Flight Recorders



MILITARY AVIATION



SURVEILLANCE

SUPERIOR SURVEILLANCE CAPABILITY WITH SHARP EYES

- Under cloud surveillance with operation specific cameras
- Border surveillance
- 24/7 surveillance with thermal and night vision cameras
- Long time hovering over the target
- Above cloud imaging of terrain and objects with SAR integration

MILITARY AVIATION

LOGISTICS

ALONE IN MISSION IN A NEW SEGMENT

- Provides logistic support for heavy duty cargo operations. ALPIN enables the rapid transportation of food and other logistics needs to the locations that are difficult to reach from military bases, especially in counter-terrorism zones, eliminating the need for road safety and similar supports and thus reduces risks.
- ALPIN can be used for the transportation of small-sized unmanned aerial vehicles and drones, which enables them to be used in the operation areas effectively. It can also perform image transfer from the wide areas which allows target detection and destruction for kamikaze UAVs.



MILITARY AVIATION

OPERATIONAL

AIR SUPPORT FOR LAND-BASED MILITARY UNITS

- With the integration of relay antennas, it ensures uninterrupted and secure communication throughout the operation which can be easily mobilized.
- Integration of short, medium and long range missiles and machine makes ALPIN an important deterrent force in the light attack helicopter class.



CIVIL AVIATION



CIVIL AVIATION

SURVEILLANCE

- **In forest;** fire detection and/or routine day and night monitoring, determination of operation areas
- **In coastal areas:** Coast Guard
- **At the borders:** smuggling detection
- **In agricultural lands:** productivity measurement
- **In open mining areas:** control and detection
- **Chemical leak detection**
- **Orthophoto and Wide Area Mapping**
- **Petroleum/Oil Pipelines security**
- **Damage assessment and mobile base station in disaster areas**



CIVIL AVIATION

LOGISTICS

NEW ERA IN LOGISTICS WHERE SIZE, WEIGHT AND DISTANCE DO NOT MATTER

- Regional and inter-regional cargo transport,
- Emergency humanitarian aid kits delivery in disaster and hard-to-reach areas
- Emergency cargo shipment to offshore gas and oil platforms
- Air support for firefighting teams in forest fires
- Monitoring of energy transmission lines for the maintenance purposes



MISSION CAPABILITIES

- Day/night intelligence, surveillance and reconnaissance (ISR) missions
- Operation in low visibility
- Electronic warfare
- Payload delivery and autonomous transportation
- GNSS jammed area operation
- Radio link range extension and retransmission
- Wide area mapping
- BLOS operation

PERFORMANCE FEATURES (ISA)

Service Ceiling	: ~6400+ m [21000+ ft]
Maximum Airspeed	: ~203 km/sa [110 kts]
Cruise Speed	: ~107 km/sa [58 kts]
Hover Ceiling with 100 kg Cargo (ISA);	
a. In Ground Effect (IGE)	: ~4100m [~13500ft] (MSL)
b. Out of Ground Effect (OGE)	: ~3500m [~11500ft] (MSL)
Maximum Payload Capacity	: ~200 Kg
MTOW	: ~550 Kg
Fuel Tank Capacity	: 175 lt
Control Radius	: ~200 km
Endurance Time (60 kg Useful Load)	: ~7+ hours
Endurance Time (100 kg Useful Load)	: ~5+ hours
Endurance Time (150 kg Useful Load)	: ~2+ hours



SPECIFICATIONS



GENERAL SPECIFICATIONS

- Ability to perform 24/7 surveillance with thermal and night vision cameras and capability to steadily observe a point or target by “long-term hovering”
- Full autonomous take-off, waypoint navigation and landing
- Long endurance time in rotary-wing UAVs
- High payload capacity
- ‘Hover’ and ‘loiter’ ability for target tracking
- Modularity and diversity in multiple payload integration
- Versatile mission concepts: intelligence, surveillance-reconnaissance, energy transmission lines monitoring, transportation, wide area mapping, mobile cellular base station, disaster zone surveillance, search and rescue operations, agricultural spraying, radio/communication relays, etc.
- Mode A/C/5/S transponder system (optional)
- Radio communication (air to air/air to ground) systems (optional)
- Easy transport with light tactical wheeled vehicles
- Real time image and video transfer (optional)
- Extendable autopilot modes upon customer/operational needs
- Autonomous target tracking with integrated camera system (optional)



RELIABILITY FEATURES

- Redundant autopilot architecture For Safe Flight
- Autorotation For Safe Landing In Engine Loss
- Emergency Rescue Parachute
- Autonomous initiation of Return to Home procedure or Parachute Deployment in predefined/restricted areas
- Smart Geographical Limitation and Sense and Avoid Systems
- Global position, speed and attitude estimation using INS
- Aircraft and Terrain Collision Avoidance System (Optional)
- GNSS Jamming Detection And Interference Elimination (Optional)
- Redundant Communication Channels upon operational requirements





OPERATIONAL FEATURES



Operational Temperature: -10°C ... +50°C



Landing Area: 15x15 m [49x49 ft]



Landing and Take Off Capability: Full Autonomous



Mission Performing Ability: Full Autonomous



Wind Limits: 37 km/h [20 kts]



Fuel: Gasoline 95 Octane



AUTOPILOT SYSTEM

- Full Autonomous Landing/Take Off and Waypoint Navigation
- Real Time Telemetry Transfer To Ground Control Unit
- Realtime Mission Planning
- Mission update During the flight
- Manual Control Simultaneous With Autopilot
- Health status monitoring, e.g. Engine Temperature, Oil, Pressure, And Similar Sensor Datas
- Payload Control And Status Feedback
- Redundant System Architecture
- Extendable Open architecture
- Smart and Configurable return to home function
- Smart geographical limitation and avoiding no-flight zones
- Hover, Altitude Hold, Loiter, Airspeed Hold and Waypoint Navigation Modes
- Mission abort for safe landing/take off
- IP67 Sealing
- -40°C ... +65°C Operating Temperature
- Shock AndVibration Resistance acc. to MIL-STD-810H



DATA/VIDEO TRANSFER SYSTEM

- Telemetry receive and transmit capability up to 80 km (50 miles)
- High quality, 10 Mbps image transfer up to 200km (optional)
- 256-bit AES encrypted image transfer (optional)
- Data transmission frequency: 900 mhz @230 kbaud
- Video transmission frequency: 2.402-2.478 ghz @10mbps (optional)
- Shock and vibration resistance acc. to MIL-STD-810H
- -40°C ... +50°C Operating Temperature
- Encrypted image and data transfer/broadcast to multiple points
- Protection against jamming with frequency hopping



GROUND CONTROL STATION (GCS)

- Mission control
- Payload control
- Real time telemetry
- Real time mission update
- Additional payload control computer
- Simultaneous Multiple parameter display
- Ability to work with multiple ground data terminal
- Portable, mobile or stationary solutions
- Encoded telemetry system
- Uninterrupted power supply
- User defined screens can be added according to user needs
- Instant data and image recording



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