



GOVERNMENT OF INDIA
DIRECTORATE GENERAL OF CIVIL AVIATION
DRONE DIRECTORATE

TYPE CERTIFICATE
No.: T11230000017

This certificate, issued to **M/s GARUDA AEROSPACE PRIVATE LIMITED** certifies that
the Unmanned Aircraft System

"GA-AD-M"

*its technical specifications and operating limitations for which are contained in
Datasheet No **T11230000017** dated **22nd November, 2023** is of proper design,
material, specification, construction and performance for safe operation based on
the recommendation of **UL INDIA PRIVATE LIMITED** as required by the
Certification Scheme for Unmanned Aircraft Systems notified by the Ministry of
Civil Aviation vide S.O. 347(E) dated the 26th of January, 2022.*

*This Type Certificate is issued under the provision of Rule 8 and Rule 9 (3) of the
Drone Rules 2021.*

This certificate shall remain valid until suspended or cancelled.

Date: 22nd November, 2023

Director General of Civil Aviation

Technical Specifications Of M/S GARUDA AEROSPACE PRIVATE LIMITED's UAS Model
GA-AD-M

Manufacturer Name	GARUDA AEROSPACE PRIVATE LIMITED
Address	24, 46, KB Dasan Rd, Seetammal Colony, Seethammal Colony, Lubdhi Colony, Alwarpet, Chennai, Tamil Nadu 600018, Chennai, TAMIL NADU, 600018, INDIA
UAS Model Name	GA-AD-M
Description	GA-AD-M is a rotorcraft with Hexacopter-X configuration having a spray system consisting of 4 flat jet nozzles or 2 centrifugal nozzles, FPV camera and spray system and 10-liter maximum allowed capacity tank for spraying of agrochemicals.

UAS Details

Category/Sub-Category	rotorcraft (RPAS)
Class	MEDIUM
Maximum all-up-weight(including payload) in kg	29.64
Overall dimensions (l x b x h) in mm	2032.0 x 2032.0 x 580.0

Payload Details

Details of each Compatible Payload (including Manufacturer Name, Payload Specifications with Model No., Intended Applications)	Sprayer tank with maximum allowed capacity of 10 litres or 10 Kg for spraying mode only and FPV Camera.
Variable Load/Consumables (Like fluid etc., if any)	Pesticides, Organic Fertilizers, Plant Nutrients (Agro Chemicals)

Power plant Details

Engine details (Manufacturer details, Model No.)	NA, NA
Engine/Motor	BLDC
Power Rating	3392 watts
No. of Engines/ Motors	6
Total fuel capacity (kg)/ Battery capacity (mAh)	25000.0 mAh
Propeller details (Diameter, Max RPM)	Diameter - 24 inches, Pitch - 8, Max RPM - 5381

Equipment Details

GNSS	Available
Autonomous Flight Termination System or Return Home (RH)	Available Available
Flashing anti-collision strobe lights	Not Available

RFID and GSM SIM Card	RFID- Not Available GSM SIM Card- Available
Flight control Module	Available
SSR transponder (Mode 'C' or 'S') or ADS-B OUT equipment (if applicable)	Not Available Not Available
Barometric equipment (with capability for remote sub-scale setting) (if applicable)	Not Available
Geo-fencing Capability	Available
Detect and Avoid Capability (if applicable)	Available

Remote Pilot Station

Ground Control Station Model No.	Garuda
GCS App. Version	1.0

C2 Link

Equipment details	H12
Frequency Band	2.402-2.480 GHz
ETA issued by WPC Wing, DoT	Details- ETA-SD-20230504009 dated 6th May, 2023

Performance Details

Maximum Endurance (hr/m)	19 minutes
Maximum Range (in km)	1.5 Km
Maximum Speed (in m/s)	10.0 m/sec
Maximum Height attainable/ Maximum Ceiling Height (in ft)	82.021 ft
Operating Altitude (in ft)	82.021 ft
Operational Envelope	VLOS Day
Engine limits (Maximum RPM) / Max. Battery Temperature (in deg C)	50.0 deg C
Propeller limits (Maximum)	5381 RPM

Documents / Manuals

Manufacturer's Operating Manual (as applicable)	FLIGHT MANUAL Ver. 3.0 dated 11th November, 2023
Manufacturer's Maintenance guidelines (as applicable)	GA MAINTENANCE MANUAL Ver. 3.0 dated 11th November, 2023
Maintenance Inspection Schedule/Overhaul interval	GA MAINTENANCE MANUAL Ver. 3.0 dated 11th November, 2023
Maintenance Log Book	GA MAINTENANCE LOG BOOK Ver. 1.0 dated 18th September, 2023

Flight Log Book	GA FLIGHT LOG BOOK Ver. 1.0 dated 18th September, 2023
User Guide/ Self Explanatory Information Booklet for end users	FLIGHT MANUAL Ver. 3.0 dated 11th November, 2023
Intended Applications	
Intended Applications	UAS Model 'GA-AD-M' is an agriculture drone mainly used for agrochemical spraying and crop monitoring.

**Limitations & Conditions to GARUDA AEROSPACE PRIVATE LIMITED for manufacturing of
UAS Model GA-AD-M**

1. **M/s Garuda Aerospace Private Limited, Chennai** henceforth referred as manufacturer in this documents shall comply with the applicable Rules, Regulations & Requirements issued from time to time. The manufacturer shall comply with mandatory safety features (if any) as and when mandated by Ministry of Civil Aviation/DGCA.
2. Design documents and manuals submitted shall be frozen and controlled. Any changes effecting to the Type Certificate/Data sheet, the manufacturer shall approach through Authorised Testing Entity for up-dation of the Type Certificate/Data Sheet issued there under.
3. Manufacturer shall be responsible for all UAS Model “**GA-AD-M**” produced by them conforms to this type certificate & data sheet and shall issue a certificate of conformity for each UAS produced.
4. Manufacturer shall ensure that their UAS is not tampered at the time of sale and also at the time of maintenance. Manufacturer shall monitor the same and notified to DGCA as and when required.
5. Manufacturer shall maintain list of their vendors, bill of materials, inventory of UAS including buyer details with configurations sold to them etc. and access to the same shall be provided to DGCA during surveillance and as & when requested for. It shall be the responsibility of the manufacturer to ensure that their UAS are sold to bonafide customers.
- 6. Manufacturer shall ensure that operations is restricted to Visual Line of Sight & day operations only and within the operations/ performance limitations specified in the frozen manuals.**
7. Manufacturer shall affix fireproof plate for indicating UIN, Manufacturer's name, model no. and serial no. in all the UAS manufactured before it is transferred to the buyer.
8. Manufacturer shall intimate DGCA about any violations, defects, faults, malfunctions, incidents and accidents involving the subject UAS model quarterly and as when sought for.
- 9. UAS Model “GA-AD-M” can be used for intended applications only. Manufacturer shall ensure that the drone is flown away (30m) from uninvolved people and not flown over the crowd/uninvolved people. The manufacturer shall be responsible for ensuring this condition and educate end users accordingly.**
10. Manufacturer shall be responsible for rights related to design and development of the UAS model “**GA-AD-M**” and DGCA shall not be party to any dispute arising due to proprietary right issues.
11. Manufacturer shall abide by the IT Act 2000 and any subsequent revision.
12. In case of violation of any of the above mentioned conditions and/ or operating requirements & restrictions specified in this Type Certificate, penal action shall be initiated in line with the Drone Rules, 2021.