



**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**

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| 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 |

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| 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 |

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| 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.