

PRELIMINARY ENGINEERING TARGET SPECIFICATIONS

AUTONOMOUS AERIAL SYSTEMS

FOUR MISSION-BUILT PLATFORMS

A coordinated product family for precision agriculture, logistics and fire response, infrastructure inspection, and unarmed public-safety or security patrol.

● AGRICULTURE

● CARGO + FIRE

● INSPECTION

● PATROL

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PRODUCT FAMILY

FOUR MISSION-BUILT AIRCRAFT

Each airframe is optimized around a different mission. Shared avionics, command software, data governance and service processes create one coordinated product family.

MODEL	PRIMARY ROLE	L x W x H	BASIC MASS*	MTOM	PAYLOAD	ENDURANCE TARGET
DA8000	Spray / spread / crop imaging	3,250 x 3,200 x 1,050 mm	78 kg	158 kg	70 kg	24 min empty / 12 min at 60 kg
DA7000	Cargo / medical / fire response	4,600 x 3,750 x 1,650 mm	128 kg	215 kg	80 kg	42 min empty / 17 min at 80 kg
DA4000	Infrastructure / industrial inspection	1,850 x 1,720 x 620 mm	24.5 kg	36 kg	6 kg	55 min standard / 42 min full
DA5000	Unarmed patrol / monitoring	3,900 x 4,400 x 780 mm	58 kg	84 kg	12 kg	95 min standard / 70 min full

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DA8000

CANOPY-FRAME

Integrated tank, spreading cassette and crop sensor suite.

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DA7000

TWIN-HALO

Sealed cargo pod or FR-60 civilian fire-response module.

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DA4000

TRI-ARC

Protected close-inspection geometry and specialist sensors.

●

DA5000

MANTA-CELL

Lifting-body endurance and embedded monitoring suite.

DESIGN STATUS | Concept-level configuration. Final specifications depend on propulsion sizing, battery selection, structural analysis, payload supplier, prototype testing and country-specific approval.

PRECISION AGRICULTURE

DA8000 AGRIFLOW

High-capacity spraying, spreading and crop intelligence in one integrated airframe.



MISSION SYSTEM

Liquid system	60 L / 60 kg; four centrifugal atomizers
Flow / droplets	Up to 28 L/min; 50-500 micrometre adjustable droplets
Effective swath	6-12 m, crop and operating-height dependent
Granular system	95 L hopper; up to 70 kg; target 250 kg/min peak rate
Terrain following	0.5-20 m AGL configurable operating envelope
Crop imaging	5-band multispectral + panchromatic; optional radiometric LWIR

3,250 x 3,200 x 1,050 mm

Operational L x W x H

78 kg

Basic operating mass*

158 kg

Target maximum take-off mass

70 kg

Maximum useful payload

AIRCRAFT AND PERFORMANCE

Architecture	Four protected rotor cells; eight-motor coaxial propulsion target
Dimensions	3,250 x 3,200 x 1,050 mm (L x W x H, mission-ready)
Basic operating mass	78 kg with dual battery and spraying system, tank empty
MTOM / payload	158 kg / 70 kg maximum useful payload
Endurance target	24 min empty; 12 min with 60 kg liquid payload
Speed	20 m/s maximum; 15 m/s maximum application speed
Environmental	10 m/s wind target; IP56 target; -10 to 50 C
Positioning	Multi-band GNSS + RTK; target hover accuracy +/-10 cm
Data link	15 km line-of-sight target; 4G/5G backhaul option

SENSORS, NAVIGATION AND SAFETY

RGB	4K video; 20 MP navigation / crop-context camera
Multispectral	475 / 560 / 668 / 717 / 842 nm center wavelengths
Thermal option	640 x 512 radiometric LWIR; 8-14 micrometres
LiDAR	1,550 nm class; 200 m clear-air target
Terrain radar	60 GHz FMCW, downward terrain and canopy sensing
Obstacle radar	77-81 GHz FMCW + multi-direction vision
Safety	Dual batteries, geofence, Remote ID, obstacle avoidance, return-to-home

* Basic operating mass includes the stated standard mission configuration and batteries but excludes useful payload. All values are preliminary engineering targets and require aerodynamic, structural, thermal, battery, EMC, software, field and regulatory validation.

LOGISTICS + FIRE RESPONSE

DA7000 CARGOLIFT / FIRELIFT

A twin-halo heavy-lift platform with interchangeable cargo and civilian firefighting modules.



4,600 x 3,750 x
1,650 mm

Operational L x W x H

128 kg

Basic operating mass*

215 kg

Target maximum take-off mass

80 kg

Maximum useful payload

AIRCRAFT AND PERFORMANCE

Architecture	Twin longitudinal halo shrouds; four tandem lift rotors
Dimensions	4,600 x 3,750 x 1,650 mm (L x W x H, mission-ready)
Basic operating mass	128 kg with dual battery and standard sealed cargo pod
MTOM / payload	215 kg / 80 kg maximum useful payload
Endurance target	42 min empty; 24 min at 60 kg; 17 min at 80 kg
Range target	35 km empty; 18 km at maximum payload
Speed	22 m/s maximum; 16 m/s nominal cruise
Environmental	14 m/s wind target; IP55 target; -20 to 50 C
Data link	30 km line-of-sight target; 4G/5G; optional satellite backhaul

MISSION SYSTEM

Cargo pod	Up to 550 L sealed volume; 80 kg payload limit
Medical option	2-8 C temperature-managed pod; data-logged chain of custody
FR-60 capsule kit	4 x 15 kg or 8 x 7.5 kg non-explosive suppression capsules
Water / foam kit	60 L modular tank with approved firefighting agent
Release governance	Two-person authorization, geofence, target-zone confirmation and audit log
Prohibited configuration	No explosive charge, weapon interface or external hardpoint

SENSORS, NAVIGATION AND SAFETY

RGB / zoom	48 MP stills, 4K video, target 30x optical zoom
Thermal	640 x 512 radiometric LWIR; 8-14 micrometres
Fire imaging option	Cooled MWIR target, 3.7-4.8 micrometres
LiDAR	1,550 nm class; 200 m clear-air target
Radar	77-81 GHz FMCW for altitude and obstacle sensing in reduced visibility
Scene support	Twin white searchlights; optional smoke / gas sampling module
Safety	Dual flight computers and power paths, parachute target, ADS-B In, Remote ID

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INFRASTRUCTURE INSPECTION

DA4000 INFRASIGHT

Close, repeatable inspection with optical, thermal, LiDAR, radar and specialist spectral payloads.



1,850 x 1,720 x 620 mm

Operational L x W x H

24.5 kg

Basic operating mass*

36 kg

Target maximum take-off mass

6 kg

Maximum mission payload

AIRCRAFT AND PERFORMANCE

Architecture	Three integrated oval rotor rings; six-motor coaxial propulsion target
Dimensions	1,850 x 1,720 x 620 mm (L x W x H, mission-ready)
Basic operating mass	24.5 kg with battery and standard EO / IR payload
MTOM / payload	36 kg / 6 kg interchangeable mission payload
Endurance target	55 min standard; 42 min at maximum payload
Speed	22 m/s maximum; 14 m/s nominal inspection transit
Environmental	15 m/s wind target; IP56 target; -20 to 55 C
Navigation	RTK / PPK, visual-inertial navigation and LiDAR SLAM assistance
Automation	Repeat route, dock contacts, defect geotagging and GIS export

MISSION SYSTEM

Primary EO	61 MP full-frame target; 4K/60; target 35x optical zoom
Thermal	1,280 x 1,024 radiometric LWIR target; 8-14 micrometres
LiDAR	1,550 nm; 400 m clear-air target; up to 2 million points/s
Laser ranging	1,550 nm class; 2.5 km target maximum
mmWave radar	77-81 GHz 360-degree obstacle / structure sensing
Power option	Solar-blind UV, 240-280 nm, for corona / arcing detection
Oil & gas option	Methane OGI target, 3.2-3.4 micrometres; gas sampling cassette

SENSORS, NAVIGATION AND SAFETY

Standard outputs	RGB, radiometric thermal, point cloud, range and geotagged defect record
SWIR option	0.9-1.7 micrometres for material, haze and moisture-related workflows
Accuracy target	LiDAR range accuracy +/-2 cm at 100 m in suitable conditions
Obstacle envelope	0.2-120 m target, sensor and target-dependent
Data link	25 km line-of-sight target + 4G/5G backhaul
Safety	Protected rotors, dual navigation, geofence, Remote ID, lost-link recovery

* Basic operating mass includes the stated standard mission configuration and batteries but excludes useful payload. All values are preliminary engineering targets and require aerodynamic, structural, thermal, battery, EMC, software, field and regulatory validation.

UNARMED PATROL + MONITORING

DA5000 SENTINEL

A long-endurance, non-weaponized patrol platform for lawful public-safety and security operations.



3,900 x 4,400 x 780 mm

Operational L x W x H

58 kg

Basic operating mass*

84 kg

Target maximum take-off mass

12 kg

Maximum mission payload

AIRCRAFT AND PERFORMANCE

Architecture	Blended manta lifting body with four integrated fan cells
Dimensions	3,900 x 4,400 x 780 mm (L x W x H, mission-ready)
Basic operating mass	58 kg with battery and standard EO / IR patrol suite
MTOM / payload	84 kg / 12 kg interchangeable mission payload
Endurance target	95 min standard; 70 min at maximum payload
Extended option	Up to 180 min target with validated hybrid or fuel-cell package
Speed / radius	32 m/s maximum; 22 m/s cruise; 40 km mission-radius target
Environmental	16 m/s wind target; IP56 target; -20 to 55 C
Data link	50 km line-of-sight target; 4G/5G and RF mesh; satellite option

MISSION SYSTEM

EO / zoom	60 MP target; 4K/60; target 40x optical zoom
Low-light / NIR	0.0005 lux target; 850 / 940 nm illumination compatibility
Thermal	1,280 x 1,024 radiometric LWIR target; 8-14 micrometres
SWIR option	0.9-1.7 micrometres for haze and low-contrast environments
LiDAR / range	1,550 nm LiDAR, 250 m target; laser rangefinder 3 km target
Radar	77-81 GHz 360-degree obstacle and terrain sensing
Field support	2 x 10,000 lm searchlights; 120 dB-class loudspeaker / relay option

SENSORS, NAVIGATION AND SAFETY

Governance	Role-based access, audit logs, privacy zones and on-device redaction target
Default restriction	No facial recognition enabled by default; site policy and law govern analytics
Safety	Dual flight computers, parachute target, ADS-B In, Remote ID, geofence
Strict platform limit	Non-weaponized; no weapon hardpoints or explosive payload interface
Deployment	Military-facility perimeter, police public safety and private security, subject to approval

* Basic operating mass includes the stated standard mission configuration and batteries but excludes useful payload. All values are preliminary engineering targets and require aerodynamic, structural, thermal, battery, EMC, software, field and regulatory validation.

SENSOR ARCHITECTURE

OPTICAL, SPECTRAL, LiDAR AND RADAR TARGETS

The wavelength plan separates crop analytics, thermal detection, electrical inspection, gas workflows and navigation. Actual detector modules remain subject to integration, export, supply-chain and certification review.

SENSOR / BAND	TARGET WAVELENGTH / FREQUENCY	DA8000	DA7000	DA4000	DA5000	PRIMARY USE
Visible RGB	Approx. 400-700 nm	STD	STD	STD	STD	Context, mapping, identification of visible defects
NIR illumination	850 / 940 nm	-	OPT	OPT	STD	Low-light observation without visible white light
5-band crop sensor	475 / 560 / 668 / 717 / 842 nm	STD	-	OPT	-	Vegetation indices, crop stress and field variability
Solar-blind UV	240-280 nm	-	-	OPT	-	Corona and arcing detection on electrical assets
SWIR	0.9-1.7 micrometres	-	OPT	OPT	OPT	Material, haze, moisture and low-contrast workflows
Methane OGI	3.2-3.4 micrometres	-	OPT	OPT	-	Gas-emission visualization with approved sensor
Fire MWIR	3.7-4.8 micrometres	-	OPT	-	OPT	High-temperature flame / hotspot imaging
Radiometric LWIR	8-14 micrometres	OPT	STD	STD	STD	Temperature, fire, electrical and night observation
LiDAR	1,550 nm class	STD	STD	STD	STD	Range, point cloud, terrain and obstacle sensing
Terrain radar	60 GHz FMCW	STD	OPT	OPT	OPT	Canopy and terrain following
mmWave radar	77-81 GHz FMCW	STD	STD	STD	STD	Obstacle, altitude and reduced-visibility awareness

READING THE MATRIX

STD = standard integration target. OPT = optional mission module. '-' = not planned in the baseline configuration.

INTEGRATION CONTROL

Every payload requires interface control, calibration, EMC, environmental, export-control and field-acceptance documentation before it can appear on a final datasheet.

ENGINEERING VALIDATION ROADMAP

TURN TARGETS INTO VERIFIED PERFORMANCE.

01 REQUIREMENTS

Mission, jurisdiction, payload, duty cycle and acceptance criteria.

02 AIRFRAME

Aerodynamics, rotor flow, structure, vibration, thermal and maintainability.

03 POWER

Battery or hybrid sizing, endurance, charging, redundancy and fire containment.

04 PAYLOAD

Sensor calibration, cargo restraint, suppression-agent compatibility and interfaces.

05 PROTOTYPE

Ground, tether, flight, environmental, failure-mode and software testing.

06 APPROVAL

Country-specific airworthiness, spectrum, operator, privacy and mission authorization.

PUBLIC-FACING CLAIM CONTROL

Until validation is complete, use 'concept', 'configurable', 'target' and 'subject to engineering validation'. Do not claim certification, guaranteed payload, guaranteed endurance, autonomous authorization or regulatory approval. DA7000-FR uses only certified non-explosive fire-suppression agents and approved civilian firefighting procedures.