MAI

MARJ AL BAHRAIN INVESTMENT

مرج البحرين للاستثمار

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UAV PRODUCTION LINE

Mass-producible Drone Product

TH-X180

TH-A1

TH-U20

TH-U30

TH-L20

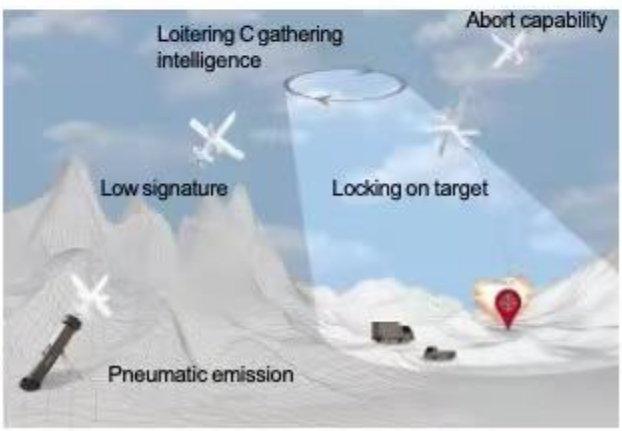
TH-Ux10/Ux13

Loitering Munitions

TH-X180

Easy-to-use, Low Cost, Man-portable, Precision

Application Scenarios: Target Detection and Attack



Technical Specification	
Maximum Take-off Weight	≥15kg
Maximum Flight Speed	140~180km/h
Maximum Range	≥ 100km
Operating Altitude	100m~1000m
Endurance	≥60min
Communication Distance	≥10-50km (Optional)
Mission Load	≥3~5kg (Optional)
Fuselage Length	≥1300mm
Wingspan	≥1800mm
Maximum Diameter (Folded)	≤165mm
Maximum Length (Folded)	≤1500mm
Launch Tube Length	1750mm (Excluding Gas Cylinder)
Launch Method	Tube/Catapult
Gas Cylinder Capacity	20L
Launch Pressure	2.2MPa-2.5MPa

Drone Specifications	
Maximum takeoff weight	1050g
Maximum ascent/descent speed	6m/s (normal mode), 8m/s (sport mode)
Thermal Resolution	640x512@30Hz / 384x288@30Hz
Video Resolution	3840x2160@30FPS
Maximum horizontal flight speed (near sea level without wind)	15 m/s (normal mode); forward flight: 21m/s, sideways flight: 20m/s; backward flight: 19m/s (sport mode)
Maximum wind resistance speed	12 m/s
Maximum takeoff altitude	6000 m (unloaded flight)
Longest flight time (windless environment)	45 min
Longest hover time (windless environment)	38 min
Maximum range	32 km

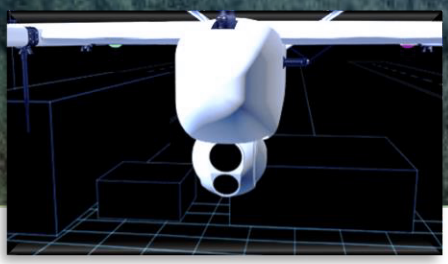
Controller Specifications	
Screen resolution	1920x1080
Screen size	5.5 inches
Screen frame rate	60FPS
Screen brightness	1000 nit
Screen touch	10-point touch

Reconnaissance Drone

TH-U20

Vertical Takeoff and Landing, Long Endurance, Foldable Design

Application scenarios: Task Inspection, Environmental Monitoring



3 lenses with different functions

323 333T 343

Multi-function camera
Support visible light/infrared/wide Angle/laser ranging 30x optical zoom

Multi-target automatic recognition
People, vehicles and other targets automatic recognition, special target customization

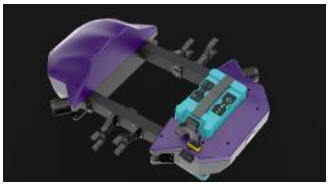
Technical data	
Fuselage Length	1.55 m
Wingspan	3.0 m
Maximum Take-off Weight	17kg
Shipping Box Size	124×60×68cm(L×W×H)
Endurance	120min
Cruising Speed	70 to 115km/h
Max Wind Speed Resistance	16m/s
Service Ceiling	5500m
Operating Temperature	- 20 ℃ to 50 ℃
Take-off and Landing Mode	Fully automatic vertical take-off and landing
Horizontal Positioning Accuracy	1cm+1ppm
Vertical Positioning Accuracy	2cm
Propulsion System	Electric

Agricultural Drone

TH-L20

Foldable Design, High Precision Operation

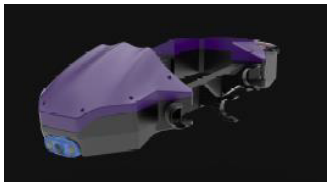
Application scenarios:Agricultural Fertilization, Agricultural Spraying, Agricultural Sowing

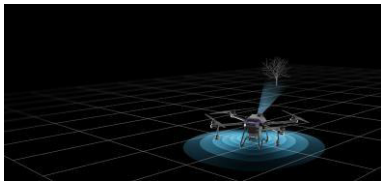


Smart batter

The upper and lower covers of the whole machine body are sealed to effectively take out the dust-proof and waterproof effect.

Technical data	
Folded Size	1010 x 610 x 575mm(L×W×H)
Unfolded Size	1140 x 1330 x 575mm(L×W×H)
Max Diagonal Wheelbase	1480mm
Maximum take-off weight	40kg
Max Flight Time	No load(20-25min) Full load (7-10min)
Load	20L
Maximum Operating Flight Speed	3-8m/s
Spray Width	3-5m/s
Spray Flow	4-8L/Min





Embedded front camera

FPV Drone

TH-UX13

Small, High Mobility, Low Cost

Application Scenarios: Environmental Monitoring, Target Tracking, Drone Training

The use of high-strength carbon fiber frame, can effectively protect the internal parts, prevent impact damage.

Technical Specification		
Wheelbase	599mm	
Empty Weight	2070g	
Payload Capacity	5kg	
Maximum Level Flight Speed	140km/h	
Max Transmission Distance	3-5km	
Ceiling	6000m	
Maximum Flight Time	No load	20min
	Load 2kg	15min
	Load 5kg	3min

About Our Oversea Factory

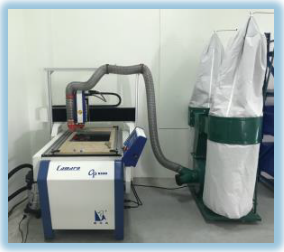
Our specialization in design and manufacture of various drones makes us capable of reaching evolving demands from both commercial and military sectors.

You are more than welcomed to pay a visit to our factory plant to enhance trust and consensus.

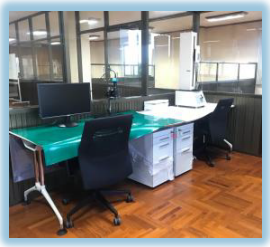
Product display

Factory Product Line Show

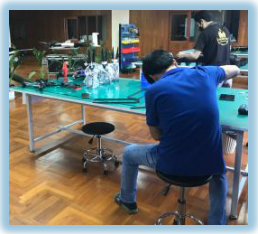
General material manufacture

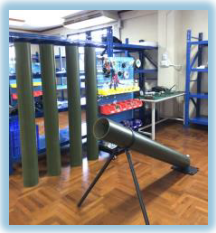

Incoming inspection




Half-product assembly


Final-product assembly


Product pre-test


Product final-test

Product Final Test



Ground Test & Inspection


Drone Launch


Drone Monitor Picture & Landing

UAV PRODUCTION LINE TRANSFER

Decomposition of UAV Manufacturing

UAV PRODUCTION LINE TRANSFER

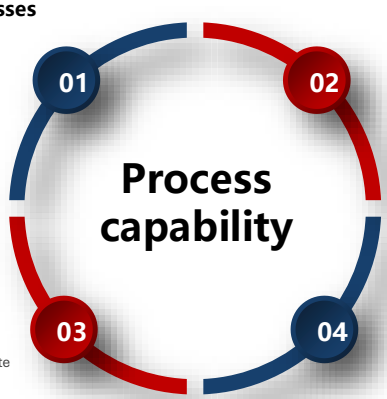
Drone Manufacturing Process

Introduction of new processes and equipment

- Preparation and review of process documents;
- Validation of new equipment and new processes; introduction of new equipment and processes;

Process Flow Optimization and Efficiency Improvement

- Develop and implement various production procedures, standards, and monitor their implementation;
- Provide technical guidance for production and continuously improve production processes;
- Design, improve, and inspect fixtures and tools;
- Maintain production equipment;
- Plan and lay out production lines, set work times, optimize production processes, and improve efficiency.



On-site Problem Analysis

- Production maintenance and on-site quality problem analysis and resolution;
- Post-sales technical support;

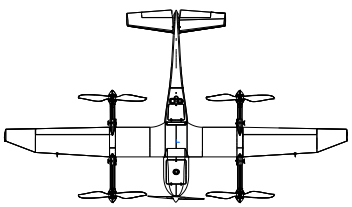
NPI - New Product Introduction

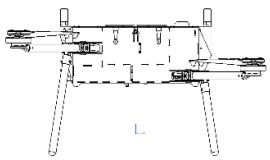
- New Product Trial Production Follow-up;

- Lead the new product introduction (NPI) work, participate in the feasibility analysis, product performance analysis, risk analysis and technical review work for the preliminary stage of new product introduction, reduce the risks of new product introduction, and lead the technical analysis of major and special problems.
- Arrange the production process and process for new product launch, coordinate with R&D and factories, track and summarize problems during the trial production process in real-time, and do a good job of transitioning from trial production to mass production.

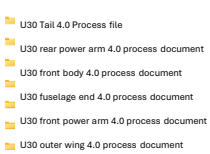
Product life cycle

3 Stages	Pre-research stage	Development stage			Production stage	
6 Stages	Concept	EVT	DVT	PVT	MP	PO
Phase name	Pre-research stage	Proof of principle	Engineering verification	Mass production verification		
Main work	Business argument Feasibility demonstration	Technical verification Hand verification	Small batch verification Reliability test	Batch trial production Yield/productivity improvement		
Overall condition	Prototype	Principle prototype	Engineering prototype	Mass production complete machine		
End mark	Demand shaping Project initiation	Scheme typification Starting mold opening	Design stereotype Material sample signing	Production process setting Complete sample seal		



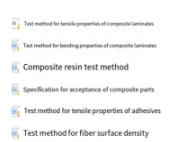


Composite Material Process Document

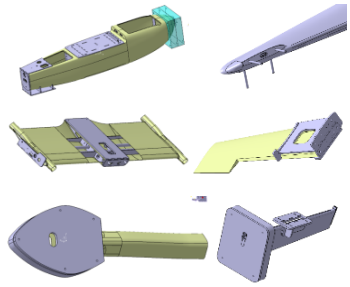


Spray Painting Process Document

Test Method for Raw Materials of Composite Materials



Tooling Fixture



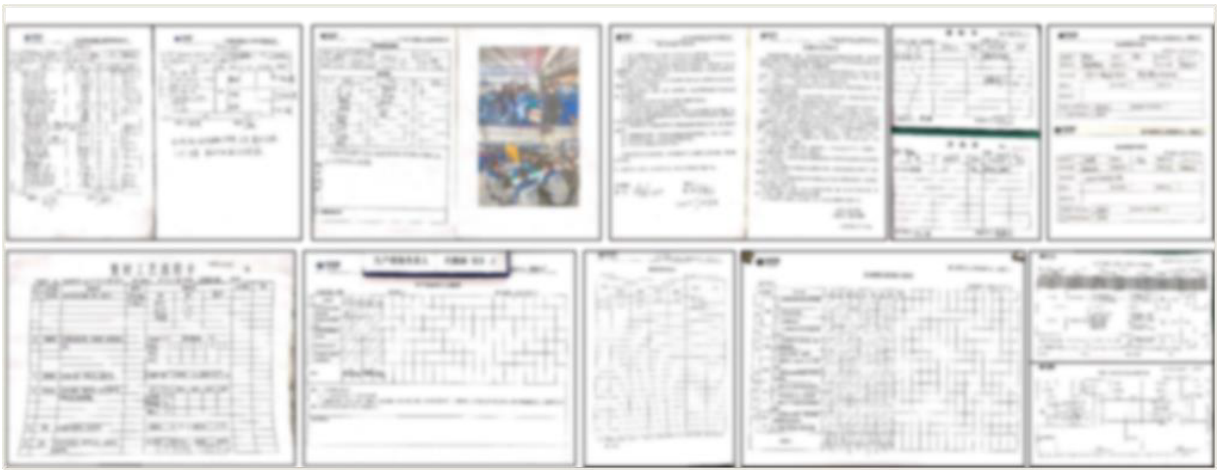
UAV PRODUCTION LINE TRANSFER

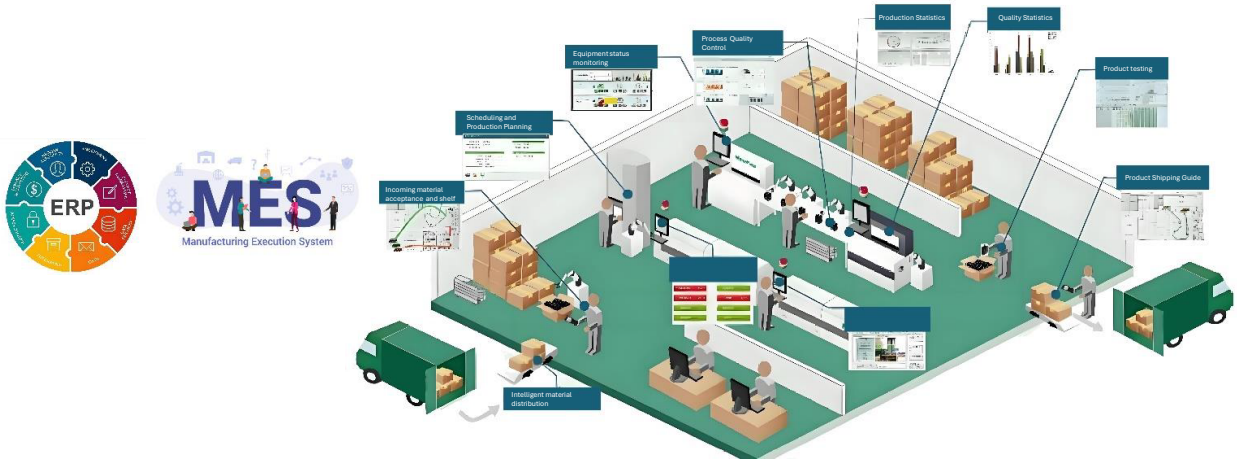
Process Control for Drone Operation System

Department System

Serial number	System Name	Primary target
1	Key Process Quality Control Management Measures	Establish quality inspection standards for key processes, and clarify the quality standards and operating procedures for the circulation and warehousing of processed products.
2	Management Measures for Production Self-inspection, Mutual Inspection and Process Records	Conduct quality control on the production process, reduce defects, and facilitate traceability and accountability.
3	Production dispatch and scheduling management methods	Review production tasks, allocate production resources, maximize production value , and facilitate analysis of working hours.
4	Safety Production Management System	Establish safe operating procedures, hidden danger inspections and safety training for each team and position.
5	Implementation Rules for New Employee Safety Training	Establish a three-level safety training program for employees entering the factory and have them sign a relevant letter of commitment.
6	Management Measures for Determining Posts, Responsibilities and Division of Labor	Clarify departmental responsibilities and module divisions, clarify job settings, and clarify overall job and responsibility definitions.
7	Standards for Cleanliness Management of Production Workshops	Standardize production site management to ensure safe and clean production sites while improving product quality.
8	Production Equipment Management Specifications	Establish equipment daily inspection form, carry out equipment maintenance and safe operation procedures to ensure production safety and normal operation of equipment
9	Training and Assessment for New and Old Employees in Various Types of Work	Establish a standardized and rigorous training mechanism for new employees to help them quickly adapt to their positions and quickly acquire the ability to independently undertake work tasks

Process Form





UAV PRODUCTION LINE TRANSFER

Manufacturing Implementation

Composite Materials

The composite material department mainly produces composite material shells for UAVs. The main production equipment includes composite material drying boxes, cold traps, vacuum pumps, feeders, etc. It has now formed three major production processes: vacuum bag forming, compression molding, and internal spray painting. The composite shells produced have the characteristics of high structural elasticity, high rigidity, and light weight. The department also undertakes the maintenance and repair tasks of the molds required for composite paste making, and performs maintenance on the fine grinding of new molds and mold loss during the production process to ensure the consistency and interchangeability of the composite shells. At the same time, it undertakes the grid frame construction and hole opening tasks of the composite shells, and provides precise positioning for the insertion of each fuselage module.




Composite Materials Department - Main Equipment

Hot air circulation oven : can be directly pushed into the trolley; the product is heated by constant temperature hot air circulation, and the temperature at each point in the drying oven is uniform; it takes about 30 minutes from room temperature to 200 ℃ , and when the temperature in the oven reaches 200 ℃ , the outer wall temperature does not exceed 45℃ ; independent temperature sensor to ensure the safety of equipment and drying materials; direct timing or temperature timing can be performed, and heating will be automatically cut off and an alarm will be issued when the time is up; it can be used in conjunction with a vacuum pump to have a vacuuming effect, and is specially used for drying and molding of composite materials.

Sanding and painting

The polishing and painting department mainly undertakes the beautification tasks of the paste composite shell and the maintenance tasks of the product appearance. The main equipment includes polishing room, spray paint room, paint room, etc. The polishing room is equipped with a negative pressure polishing table, which can absorb 95% of the dust; the spray paint room is a constant temperature and humidity dust-free room, equipped with an independent air supply and exhaust system, providing a high-quality environment for the paint surface quality and operation; the paint room is equipped with a temperature monitoring system. When the temperature is insufficient, the equipment automatically starts to ensure the indoor constant temperature effect and reduce the man-hour cost. At the same time, the department is equipped with an exhaust gas treatment and environmental protection system to achieve zero exhaust gas emissions.



UAV PRODUCTION LINE TRANSFER

Manufacturing Implementation

Machining

The machining department is equipped with CNC machining centers, CNC lathes, digital display milling machines, laser cutting machines, carbon plate engraving machines, bench drills, etc. It has the capabilities of turning, milling, planing, grinding, boring, drilling, tapping, and laser processing. The department processes according to the types of products produced and the technological characteristics of the products. Currently, the main parts processed are aluminum parts, copper parts, glass fiber, carbon plates, nylon plates, acrylic plates and other assemblies, undertaking the production tasks of all product skeletons and core components.

Avionics System

The electrical circuit department can complete the mass production of various wiring harnesses and the assembly of electrical equipment. The main production equipment includes fully automatic computer wire stripping machines, silent terminal machines, intelligent lead-free soldering stations, hot air guns, etc. The department also undertakes the trial production and research and development of electronic materials, and has the ability to analyze and process difficult problems such as system integration control, positioning, orientation, and signals. It is a core department that continuously injects fresh blood into the products.

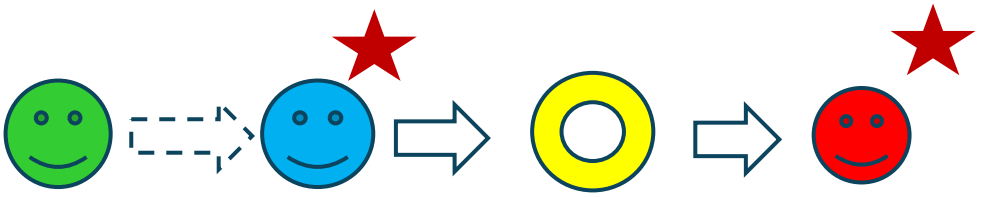
Assembly Department

The assembly department can complete the assembly of various products and has the ability to assemble precision components. The main products currently assembled include composite wing drones, rotary wing drones, tilt cameras and customized small batch products. This department is the last production link of the product, which is responsible for inspecting the adaptability of semi-finished products in each upstream process section, and is also responsible for product inspection and maintenance, ensuring aircraft operation and maintenance, making aircraft flights safer, more reliable and more efficient.

UAV PRODUCTION LINE TRANSFER

Quality Control

Key points of drone product quality layout

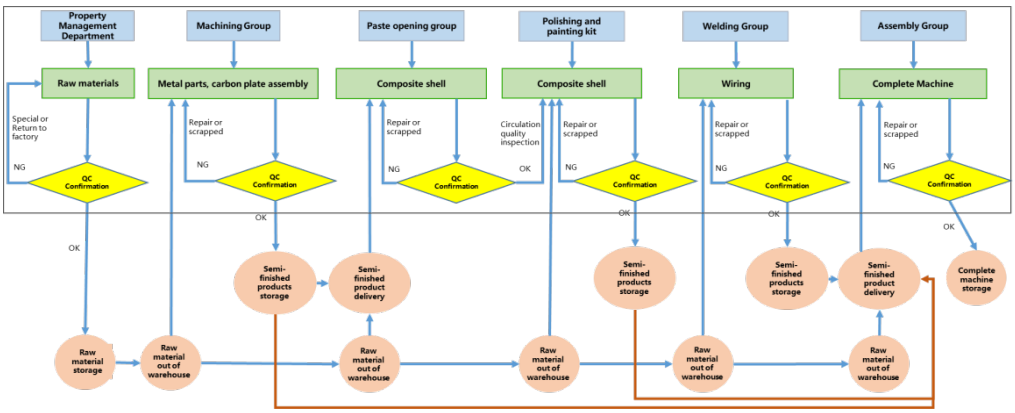


Design Quality (DQE)	Incoming material quality (IQC)	Process Quality (IPQC)	Final Quality (FQC)
1. Establishment of quality standards for finished products, components and parts 2. Finished product / component reliability testing; 3. Establishment of performance indicators for finished products / components 4. Finished product / component performance environmental testing; 5. Establish and publish enterprise standards;	1. Establishment of incoming material inspection plan for core components 2. Core parts supplier management 3. Promote quality contracts and reduce quality risks 4. Determine abnormalities in incoming materials and promote improvements from suppliers.	1. Implement KPIV management in the production process; 2. Supervision and implementation of production standardization 3. Promote yield improvement 4. Promote the improvement of job competence and assessment of personnel at key workstations 5. Assist engineering process to analyze and improve process abnormalities	1. Implementation of the full quality inspection plan for finished products 2. Implementation of finished product reliability 3. Simulate the deployment of customer usage plans 4. Check and verify the shipping packaging and labels.

UAV product quality operation plan

QC: Execute according to the documents and find problems → **PQE: Report problems, coordinate personnel, and make preliminary judgments on problem points** → **DQE&SQE: Collaborative teamwork to solve problems**

Drone production flow chart



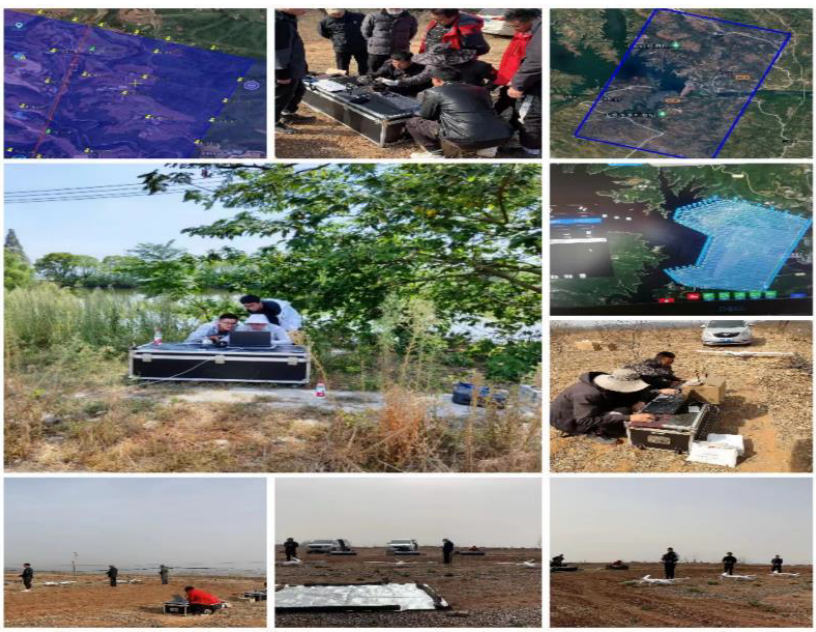
UAV PRODUCTION LINE TRANSFER

Customer Acceptance & Delivery

Customer Inspection & Acceptance

Follow the equipment delivery to customers and conduct demonstration flights on site.

UAV Delivery



Provide systematic training to customers, help them master the skills of aerial survey flight of UAVs and mission equipment, and enable them to complete the work independently.

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