

# Ogasawara Kogyo Co., Ltd.



## Patented drone with unique annular blade structure enables remote inspection of offshore wind power generation sites

Category **O&M** > Maintenance Drones



### Industrial drone capable of long-duration flight created through original development

Drawing on its many years of expertise in metalworking, Ogasawara Kogyo has developed a drone designed for surveying and inspection services, logistics, and more. With its combination of magnesium alloy used for 70% of the fuselage and carbon fiber-reinforced plastic (CFRP) for 20%, the drone achieves high rigidity and durability despite its light weight. While conventional general-purpose drones have limited flight times of only about 20 minutes, hindering their potential for use in business operations, **the company has developed an aerodynamic structure specially designed to enable long flight times, successfully completing flight tests of up to 75 minutes. (Testing conditions: 40 m elevation, average wind speed of 3 m/s,**

**flying at 2 m/s with a 2-kg load)** The drone features a patented annular wing structure, which gains buoyancy from wind to achieve extended flight times. Ogasawara Kogyo aims to utilize this technology to respond to needs including maintenance for offshore wind power generation in distant marine locations. To put this technology to practical use, **the company is currently working to develop a maintenance drone equipped with a 61-megapixel camera capable of detecting damage to towers, blades, and nacelles.** The drone has already been tested at a wind power generation plant in the town of Ikata-chō, Ehime Prefecture, where it successfully photographed propellers, which frequently incur damage.

- Materials used: Pure, domestically produced magnesium alloy and carbon fiber • Manufacturing size/weight: Distance between motors, 1,680 mm; weight, approx. 12 kg; max. takeoff weight, 33 kg
- Power source: Battery-powered • Max. flight speed: 54 km/h • Patents: Nos. 6932316, 7012227, 7048867, 7340141, and 7391289 • Security: Uses a flight controller that does not maintain data, with data management on designated servers

#### Adoption Record

##### Proof-of-concept demonstration of drone-facilitated logistics



A demonstration of the drone aimed at showing potential solutions to issues facing depopulated island areas. The drone successfully made a flight with a one-way, straight-line distance of 8 km on a route from Imabari City's Namikata Port to the island of Ōmishima, carrying up to 5 kg of cargo. Operated remotely from Namikata Port, the drone completed automated processes for all operations, from takeoff to cargo drop-off and landing. The craft never needed to be recharged during its 16-km round-trip flight.

##### Selected to take part in the SBIR Demonstration Project



In recognition of its experience successfully developing a drone capable of long-duration flight, Ogasawara Kogyo was selected to take part in the SBIR Demonstration Project. In response to an order received from MLIT, the company is working to develop a craft capable of making long-duration flights amid rainfall, even in mountainous areas. The eventual goal is to design a drone equipped to carry 2-kg payloads on flights of over 80 minutes amid rainfall in mountainous areas.

#### Main Equipment and Machinery

- Hydraulic Press Brake: 110t, 2400mm / 2 units
- Argon Welding Machine: 300A / 5 units
- Desktop Drill Press: Drilling capacity 13mm / 3 units
- Shearing Machine: 6mm x 3m / 1 unit, 4.5mm x 2.4m / 1 unit, 16mm x 4m / 1 unit
- Soldering Iron: 110W / 1 unit

#### Company Information

Business: Manufacturing and sales of drones, stainless steel tanks, and steel tanks; sales of LP gas and high-pressure gas  
 Location: 5-10-3 Kukodori, Matsuyama, Ehime Prefecture, 791-0054  
 Established: September 1966 (Founded August 1920)  
 Capital: 30 million yen Employees: 20  
 Representative: President Hideyuki Ogasawara  
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