



*Dependability ... from the ground up*

**Firstmark Aerospace**  
**921 Holloway Street, Durham, North Carolina, 27701 United States**  
**1.888.832.7722**  
**[www.firstmarkaerospace.com](http://www.firstmarkaerospace.com)**

## Capability Overview

Firstmark is a high-quality manufacturer of flight-control components for the Aerospace and Defense industry. With our expert design engineering team and premium build-to-print capabilities, we produce solutions for the most demanding applications.

- World-class electronic, electro-mechanical, and electromagnetic engineering capabilities
- Demonstrated design and build capability
- Proven heritage with thousands of hours of flight critical operation
- Infrastructure in place to design and manufacture high performance products (109,000 sq. ft. manufacturing facility)
- Qualified aftermarket support organization.

## History

Firstmark has a long history in the Aerospace and Defense marketplace. Founded as Wright Machinery Company in 1893, the company moved into its current facility in Durham, North Carolina in 1941. During World War II, Wright Machinery produced gunfire control systems for Ford and Sperry. After the war, Sperry acquired the company. Under Sperry's ownership, the company entered the space market in 1968, building products such as satellite motion control and antenna pointing devices. When Sperry was acquired by Honeywell in 1986, the company focused on manufacturing high quality aircraft products and space electro-magnetic components. In 1996, Tecstar purchased the company, diversifying the customer base and successfully competing in a wider range of markets. In 2002, the company became Firstmark Aerospace.

Today, Firstmark Aerospace continues to be a world-class electronic, electromagnetic and mechanical design house. Our products are in service worldwide, performing flawlessly in flight critical operations.

## Product Lines

Our capability is demonstrated by the breadth of our product lines. We build AC and DC servo motors; AC and DC drive motors; brushless DC torquers and spin motors; limited angle torquers and tachometer resolvers, including brushless types; microsins; eddy current dampers; AC and DC tachometers; clutch and brake assemblies; and linear and rotary actuators. Our navigation system calibration equipment is used worldwide.

## Electromagnetic Capability

Our electromagnetic design capabilities are among the best in the Aerospace and Defense industry. We have made significant investments in our ability to design custom solutions. We meet and exceed tough performance requirements. For example, we have successfully manufactured motors that operate flawlessly in a nuclear reactor environment (1100°F) as well as motors that have ultra low torque anomalies.

## Repair Station

Our FAA/JAA certified repair station, #E9HR396N, provides service for every component manufactured at Firstmark. Our capabilities include flux valves, fuel probes, actuators, and servos. NSN and part numbers are listed on our website. We want to exceed your repair and service needs with fast turn-around times and reliable support. Call us at 1.888.832.7722.

## Test Capability

Firstmark maintains a well-equipped test facility, able to apply various extremes of sinusoidal, random, shock, and thermal vibration.

Precision rate tables, coupled with microprocessor-based digital real-time spectrum analyzers, are used to evaluate and test brushless DC motors and tachometers for ripple and other anomalies. Automated test stations monitor hardware performance around-the-clock. Our electronic test equipment for precision motor and instrument work is maintained for accuracy. Test and inspection facilities are available for printed circuit, integrated circuit and transistorized electronic assemblies.

## Quality

The quality of our parts, processes, and products is maintained by combining efficient techniques and state-of-the-art test equipment. Statistical controls are used to monitor manufacturing operations. Products are individually tested and inspected, and test data is recorded and maintained.

Firstmark Aerospace is ISO9001 certified. We are a certified Honeywell supplier of avionic components: No. HASL/VA/1302 actuators and servos.

**Firstmark is a Certified Small Business and Hub Zone Certified.** [CAGE Code 3BMV1.](#)

## Actuators, Sensors, and Servos

We design and manufacture custom devices to meet our customers' most stringent requirements for performance, reliability, quality, weight, size, and environmental qualification. Our engineers specialize in designing customized value-based solutions to meet your specific needs.



## Compass System Calibrators

Our magnetic compass calibrators accurately calibrate an aircraft's magnetic compass without the physical rotation of the aircraft, and without the need of a certified compass rose. The unit can certify and calibrate a compass rose and can be used to install a new rose. The Mark 3 Magnetic Compass Calibration System enables calibration to occur in locations which would not have been possible in the past. The calibration criteria involve minimal magnetic restrictions at the calibration site. With no requirements for a compass rose, sites will no longer be remote, isolated from hangers and buildings. Time-consuming geodetic surveys are no longer factors which impact the availability and down time of the aircraft. Our customers include the US Navy, US Air Force, Italian Army, Italian Navy, US Coast Guard, Bombardier Aerospace, and Jetstream.



## Eddy Current Dampers

The eddy current damper is a standalone device requiring no external electrical or hydraulic power source. It offers unlimited performance in applications requiring braking or damping, such as a side stick controllers or flight control surface damping. Our eddy current dampers can be tailored to suit individual application requirements.



## Fuel Probes

We manufacture and repair a wide range of fuel level indicators. Aircraft from the Boeing B-47 to the Boeing 747 contain our units, which deliver performance and reliability.



## Flux Valves

We build flux valves and Magnetic Azimuth Detectors (MAD) for commercial, corporate, and military applications. We are recognized as one of the leading manufacturers of high-precision, cost-effective designs. Our flux valves are on such aircraft as the F-14, F15, and F-18; Boeing 727, 737 and 747; C130; Tornado; and the Learjet.



## Position Sensors

We manufacture a selection of position sensors to provide high-quality and less expensive solutions. Our position sensors are on board aircraft operated by Northwest, Continental Airlines, Evergreen, and Midwest Express.



## Standby Compass Calibrators

Our standby compass calibrators eliminate the need for conventional ground swinging, allowing the standby compass to be compensated in less time and at lower cost. Our standby compass calibrator is approved by both Boeing and Airbus. Customers include Airbus, American Airlines, Australian Air Force, Boeing, Delta Airlines, KLM, Italian Air Force, Qantas Airlines, Saudi Airlines, Singapore Airlines, US Air Force, and the US Navy.

## Motors

Firstmark designs and builds a variety of motors including AC, DC, Brushless, Toroidal, Torque, and Stepper Motors. Our highly experienced engineers can custom design a solution to meet your requirements. We have over 60 year of experience designing and fabricating motors for Aerospace, Aircraft, and Military applications. We are experts in optimizing motor performance to exceed your toughest requirements.

Firstmark Aerospace was selected to develop a brushless torque motor for the thrust vector actuator designed for the Theater High Altitude Area Defense (THAAD) missile defense system. The application requires state of the art power density. Firstmark not only met the power density requirement, but exceeded it by 50%. Our product generates output power of 2000 watts per pound. The centerpiece of the U.S. ballistic missile defense program, THAAD will be the first endo/exo-atmospheric system for defense against theater ballistic missiles.



THAAD thrust vector motor.

Stainless steel construction, 8-pole rotor, 3.7 inches long, 2-inch diameter, 8-horsepower capacity, at just under 3 lbs.



Example Aerospace Motor Applications



Example Aerospace Motor Components



**Firstmark Aerospace**  
**921 Holloway Street, Durham, North Carolina, 27701 United States**  
**1.888.832.7722**  
**[www.firstmarkaerospace.com](http://www.firstmarkaerospace.com)**