



# Wind Tunnel Testing Services

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Rotary-balance



Forced-Oscillation

*Bihrlle Applied Research Inc leads the industry in advanced wind tunnel test techniques designed to collect aerodynamic data in the most challenging flight regimes and throughout the full flight envelope.*

## Introduction

Backed by over 40 years of experience in the aerospace industry in support of every major manufacturer and government agency, Bihrlle Applied Research Inc (BAR) offers a comprehensive suite of wind tunnel testing services and software tools to assist airframe and sub-system manufacturers to develop and optimize aircraft designs.

## Model Fabrication

BAR is highly experienced in the construction of geometrically-scaled models used in the collection of force, moment and pressure data in wind tunnels. BAR model engineers and builders have over 40 years of experience in light-weight wind tunnel model fabrication techniques resulting in cost-effective models that provide the most accurate representation of the aircraft configuration. Models constructed by BAR have been used successfully for low-speed static and dynamic wind tunnel testing. BAR also specializes in the construction of powered models for customers requiring to evaluate power effects and the integration of global pressure taps for customers requiring to collect and visualize surface pressures.

## Wind Tunnel Testing

BAR's wind tunnel testing services provide for the acquisition of static, dynamic and powered-effects data. Whether you have a sub-scale model or a full-scale flight article, BAR can accommodate your configuration using company-owned and partner facilities. Using BAR-developed test rigs and data acquisition software and hardware, BAR provides the ability to independently or simultaneously acquire static and dynamic test data using a single model and a single test facility. BAR's extensive testing experience, specialized software tools, and innovative solutions to complex testing problems combine to provide customers with the most effective test program and technical support during the evolution of the vehicle configuration.

## Data Analysis

An essential part of any aircraft development program is the assessment of the vehicle's ability to meet the mission requirements. BAR provides the expertise to assess the aerodynamic characteristics of the aircraft over the full operational flight envelope and determine its suitability for the mission. Whether the outcome of an assessment verifies the viability of the design or produces recommendations for design changes, an aerodynamic assessment is a critical step in assuring the success of your air vehicle program.



## Typical Applications

- Identify stability & control issues
- Quantify vehicle performance
- Determine viability of novel aircraft configurations
- Evaluate configuration changes/improvements
- Collect data for upset modeling (stall, departure & recovery, spin, failures)
- Quantify powerplant effects on aerodynamic characteristics
- Source data for high-fidelity flight simulation database
- Flight control law development
- Accident investigations
- FAA/JAA certification dataset

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