Test Devices Inc.



Concept Development

Modular Test Services

At its core, Test Devices is an engineering company. The testing programs we perform for our customers, although diverse in nature, tend to follow a common engineering problem-solving process comprised of several distinct phases:

- Initial evaluation, problem definition and development of a conceptual approach to solving the problem.
- Engineering, which includes detailed design of hardware items supported by various types of analyses, systems integration of required equipment and development of a detailed test plan.
- Fabrication and assembly of individual hardware components.
- Set-up and assembly of the testing system, including various mechanical systems, instrumentation and data acquisition systems and controls.
- Execution of the testing.
- Data reduction and analysis of results.

Test Devices often delivers all of these "modules" as a complete package, but any of them can be provided on an individual basis also. Test Devices offers its customers a comprehensive range of testing services and is pleased to tailor a program with only the modules needed for the job at hand.

Project Fe	asibility Assessment	
Validation Plan / Milestones		
Project M	odules	
Design	& Analysis	
Tooling De	esign	
Engineerin	ıg Analysis	
System De	evelopment	
Controls D	lesign	
	velonment	
Destant Des	velonment	

Fabrication & Assembly

Precision Machining

Dimensional Inspection (CMM)

Ultrasonic & FPI Inspection

Custom Static Hardware (oven, measurement)

Static & Dynamic Balance

Assembly & Integration

Testing Services

Component Testing

Specialized Rigs (Static / Rotational)

Spin Testing Equipment

Test Planning

Instrumentation Design

Test Strategy

Project Management & Critical Path Tracking

Vendor Management

Data Logging & Analysis

Data Logging
Data Analysis
Failure Investigation

Design & Analysis

- Spin Tooling
 - Design & FEA
 - Rotor Dynamics
- Test Design Considerations
- Test-rotor Design
- Test Rotor Integrity Analysis
- Complex Heated Testing Rigs
- Thermal Gradient
- Heat Transfer
- Localized, Extreme (> 1700° F) Thermal

Test Design Considerations

- Assembly & Integration Steps
- Instrumentation Layout
- Robustness, Acessibility & Controllability

Tooling Design: Rotor Dynamics (Transient)

Rotor Integrity Assessment

FEA based stress studies for:

- Rotor Burst Limit
- Stress Concentrations & Fatigue
- Joint / Contact Integrity Check
- Inelastic Deformation

Fabrication & Assembly

- Extreme Temperature Conditions
- Sophisticated Instrumentation
- Slip Ring and Telemetry

Test Set-up

- Instrumentation & Cooling
- Optical, Proximity, Touch
- Heat Calibration



Figure 1 – Test Design Considerations



Figure 2 – Tooling Design: Rotor Dynamics (Transient)



Figure 4 – Fabrication & Assembly



Figure 5 – Fabrication & Assembly

Figure 3 – Rotor Integrity Assessment



Figure 6 – Test Set-up

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571 Main Street | Hudson MA, 01749-3035 Tel: 978-562-6017 | Fax: 978-562-7939 | www.testdevices.com