

DARcorporation

Design • Analysis • Research

February 2024

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Consulting Services

Custom Test Stands Design and Manufacturing

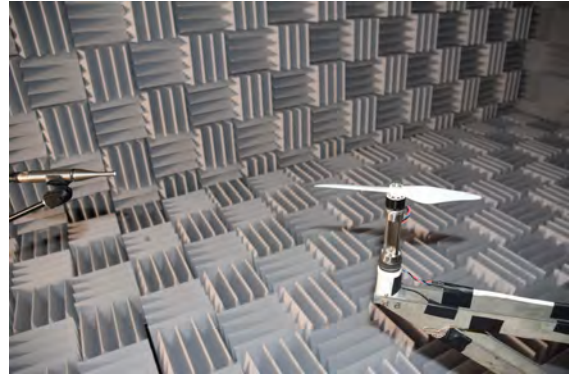


DARcorporation engineers have the ability to design and manufacture custom test stands. We have extensive experience designing test stands to accurately measure the performance of the system, model or device being tested. Based on the objective of the test, instruments and other hardware are selected by our engineers to measure the test cases. The accuracy and resolution of the instruments selected is carefully determined to provide useful data for the entire range of the test. Our test stands are designed to make this a straightforward process and provide a method of calibration for all cases.

[Additional Information](#)

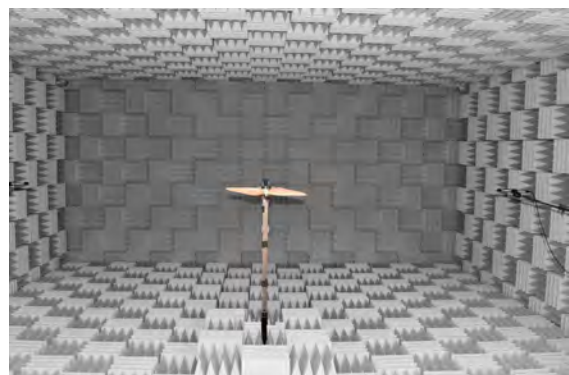
Anechoic Chamber Testing

Sound Power Level • Noise Signature • Sound Field Directivity



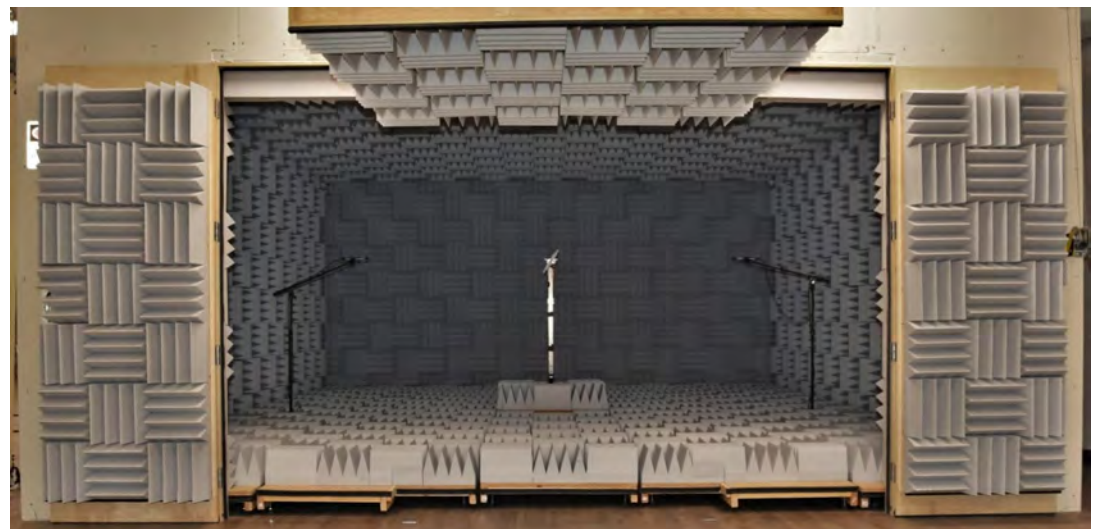
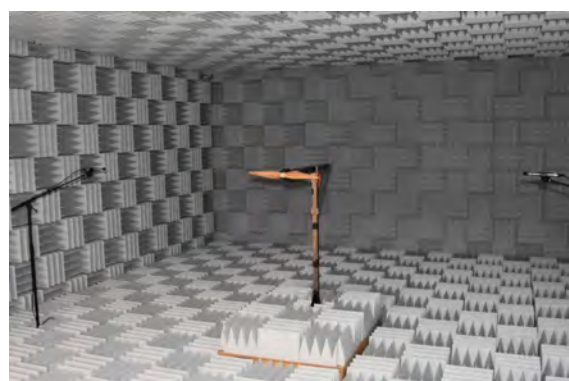
Our 22' x 17' x 7'-4" (internal dimensions) anechoic chamber testing facility is equipped with excellent acoustic attenuation with a 24 dBA ambient sound pressure level and precise Class 1 microphones. Propellers, ducted fan systems or small UAVs can be placed inside the chamber to collect data on:

- noise and sound pressure level with corresponding RPM settings
- sound power level using spherical microphone array
- directivity of sound field



DARcorporation engineers can validate and benchmark analytical acoustic analyses and perform experimental analysis on your propellers, ducted fan systems or small UAVs.

[Acoustic Testing](#)



Pump Design and Testing White Paper

DARcorporation engineers have experience with cooling systems ranging from aviation, automotive to computer electronics. This white paper outlines the design process of a centrifugal pump for a server farm. This process is also applicable to other pump types, such as axial and rotary pumps.

In this white paper, a generic commercially off-the-shelf pump performance is quantified by assembling it in an in-house closed loop test setup. With design objective to maximize total head pressure for specific fluid flow rate, optimization of fluid flow rate and efficiency is applied. The pump is then modeled and analyzed in Computational Fluid Dynamic (CFD) to create a digital twin. Sensitivity studies on Reynolds number, pump volute and blade geometry are conducted in CFD.



WHITE PAPER
Cooling Pump
Design and Testing

DARcorporation

[Download White Paper PDF](#)

Temporary Engineering Support

We understand the current engineering job market is tight and finding engineering talent can be difficult. DARcorporation engineers can temporarily fill open jobs until a permanent solution can be found or the job is finished.

DARcorporation engineers are experienced in:

- Aircraft Conceptual and Preliminary Design
- Computational Fluid Dynamics
- Structural Analysis and Structural Dynamics
- Propulsion System Design
- Propeller, Rotor and Ducted Fan Design
- 3D CAD
- Propulsion System Testing (Performance and Acoustics)
- Flight Testing
- Flight Manuals

[Contact DARcorporation](#)



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