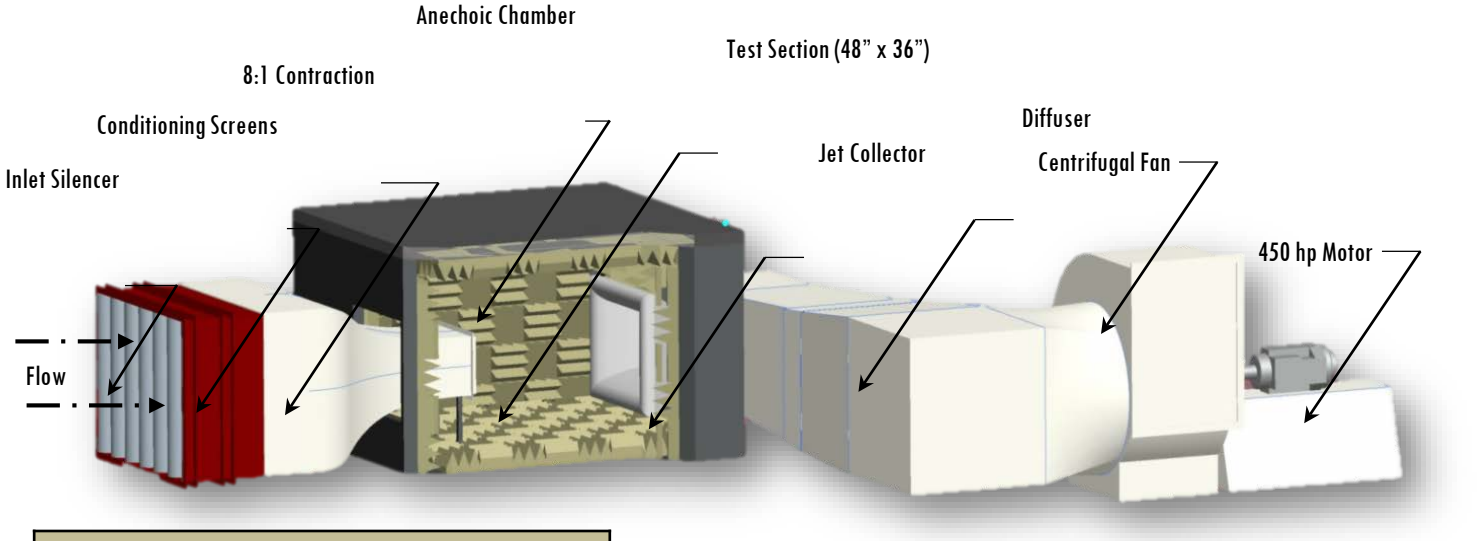
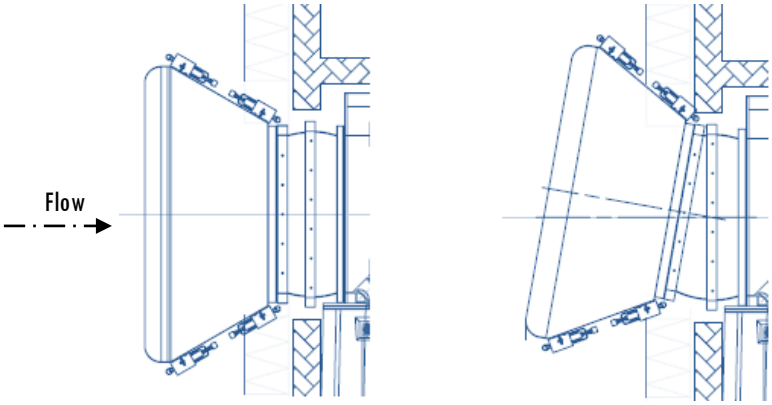
Anechoic Wind Tunnel



Advanced Diagnostics
128-channel Steady Pressure Measurements, Simultaneous
96-channel 24-bit A/D @ 204.8 kHz, Simultaneous
3-axis Force Balance for Lift/Drag Measurements
Hot Wire Anemometry
Particle Image Velocimetry (PIV) • Stereoscopic • Tomographic
Pressure Sensitive Paint (PSP)
Laser Doppler Velocimetry (LDV)
Acoustics – Directivity and Source Localization • Linear Arrays • 80-Channel Phased Array



Jet collector (top view)

Capable of swiveling $\pm 10°$ off streamwise axis to catch tunnel jet, especially useful for high-lift configurations.

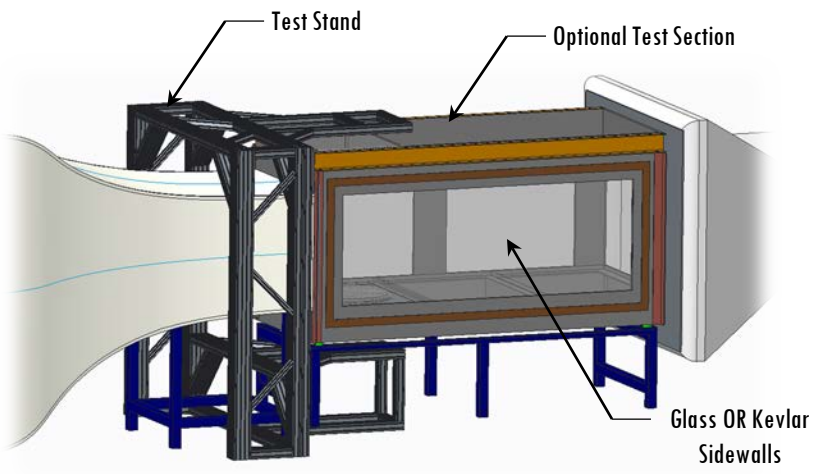
The FSU Aeroacoustic Tunnel (FSAT) is an open-circuit subsonic facility which has a 36" x 48" x 120" test section with a speed range of approximately 18-75 m/s. The facility employs a 450-hp centrifugal fan and has an anechoic chamber with a 250 Hz cut-on frequency enclosing the test section. The test section has three configuration options: open-jet, hard walls, or Kevlar walls, distinguishing itself through versatility. The facility will be used for aerodynamic and aeroacoustic studies of various flow-induced noise phenomenon and boasts state-of-the-art experimental fluid dynamic and aeroacoustic measurement capabilities.

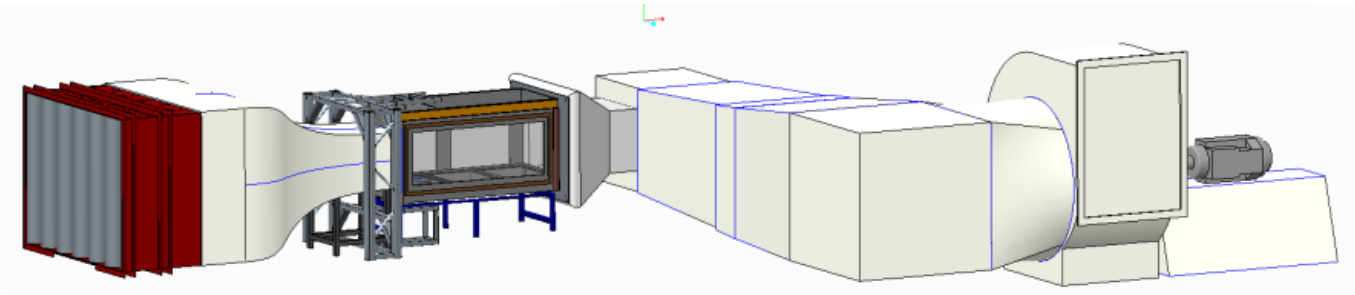
Closed Wall/Kevlar Wall Test Section Configurations

Optional closed walled test section can be outfitted with either hard walls or Kevlar sidewalls.

Hard wall – Glass sidewalls to simulate a conventional aerodynamic tunnel, with optical access for non-intrusive flow measurements.

Kevlar wall – Thin tensioned cloth to contain tunnel jet, acoustically transparent for far field acoustic measurements, Type 120.





Specifications

Item	Specification
Wind Tunnel	Open-Circuit, Open-Jet/Hard Wall/Kevlar Wall
Test Section	48” x 36” x 120”
Model Size and Aspect Ratio, Typ.	0.5 m chord, AR = 2
Mach Number Range	0.05 – 0.22
Anechoic Chamber Low Frequency Cutoff	250 Hz
Background Noise	80 dBA (M = 0.17)
Turbulence Intensity	< 0.1% above 10 Hz
RMS Inlet Flow Nonuniformity	< 1%

Contact

Faculty

Dr. Louis Cattafesta
lcattafesta@fsu.edu
(850) 645-0109

Contact Information

Florida Center for Advanced Aero-Propulsion
Florida State University
2003 Levy Ave
Tallahassee, FL 32310