University of Bristol Pressure Neutral Acoustic Wind Tunnel

PNWT

Location:
University of Bristol
Lawson Wind Tunnel Lab

Owner(s):
University of Bristol
United Kingdom

Test Section Size:
Anechoic chamber:
approximately 3.8 x 4.2m (L x W)
anechoic down to 160Hz
Rectangular nozzle:
1.0 x 0.7m; maximum speed 35m/s

Operational Status: Operational

Number and Type of Staff:
Scientific: 7
Technical Support: 4

Test support:
Workshop for wind tunnel model design, manufacture and modification capability.

Designation: Closed-loop, open-section pressure-neutral acoustic wind tunnel

Performance:
Maximum Flow Speed:
Free-stream: 35m/s.
Minimum free-stream: 5m/s.
Reynolds No: -
Total Pressure: -
Dynamic Pressure: -
Total Temperature: -
Turbulence intensity: approximately 0.2%
Run Time: -
Typical Recharge Time: -

Testing Capabilities:

Acoustic: Near-field and far-field; beamforming and source localisation
Flow visualisation: Hotwire, hotfilm, PIV
Aerodynamic loads: 6-axis force plate, miniature load cells
Laser Measurements: 2D/3D PIV, TR-PIV and phase-locked PIV

Specialist Rigs:

- Pressure-neutralisation system with ultra-quiet suction fans
- Multiple far-field microphone arrays
- Large beamforming array for noise quantification and localisation
- 6-axis force plate and miniature load-cell systems
- 128-channel pressure-scanning system
- Conventional and time-resolved 2D and 3D PIV, phase-lockable to propeller systems
- Hot-wire and hot-film anemometry systems