

ICING WIND TUNNEL

EFFICIENT AND ECONOMICAL TESTING

Highly versatile test facility capable of supporting your development and certification needs

One of only a few icing wind tunnels available for outside test services in North America, our state-of-the-art facility in Uniontown, Ohio was originally developed to meet customer test requirements and later opened for outside testing in 1988. Whether customers test independently or rely on Collins Aerospace's on-site technical support experience, our Icing Wind Tunnel provides the accuracy of micro-processor controlled testing for fixed wing and rotorcraft applications.



Full automation, combined with a quick cool-down time of under 30 minutes, allows us to change conditions rapidly and operate with a single control technician. Re-creating precise in-flight icing conditions demands attention to detail. Our Icing Wind Tunnel is capable of reproducing nearly the entire flight envelope (14 CFR Part 25, Appendix C).

KEY FEATURES

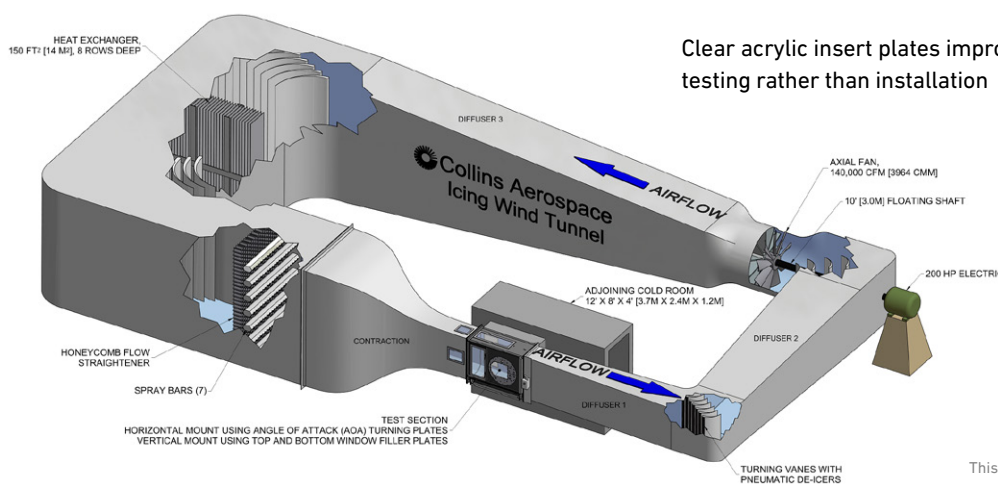
- Available for outside test services
- Test independently or with assistance on-site technical support
- Able to test Electrothermal, Pneumatic, Electromechanical, Bleed Air, and Passive Ice Protection Systems
- Fully automated
- Quick cool-down time under 30 minutes, allowing rapid change to conditions
- Capable of reproducing nearly the entire flight envelope (14 CFR Part 25, Appendix C)
- Tunnel is calibrated per SAE ARP 5905 "Calibration and Acceptance of Icing Wind Tunnels"
- All instrumentation compliant with AS9100C and calibrated to NIST-traceable standards
- Hot air-generating apparatus with pressure and temperature control for use when testing bleed-air anti-icing systems
- Additional services provided, including electrothermal heaters, access to machine shop and on-site office space for long-term testing
- Flexible scheduling, competitive rates



GENERAL SPECIFICATIONS

Temperature	Microprocessor controlled within $\pm 1^\circ\text{F}$ Icing Wind Tunnel Range 32°F to -22°F / 0°C to -30°C
Velocity	Wind speeds range from 30-230 mph / 48-370 km/h
Cloud control	Droplet sizes 5-50 microns Liquid water ranges from 0.1-3 grams per cubic meter Seven spray bars, three types of air-atomizing nozzles
Cold room	Capable of temperatures as low as $-45^\circ\text{F}/43^\circ\text{C}$ Transfer materials, collect ice shapes from tunnel without exposure
Precision Monitoring	Uses advanced instrumentation and data recording devices, including: <ul style="list-style-type: none"> • Optical displacement follower for real-time ice monitoring • Capable of monitoring hundreds of sensors every fraction of a second
Data Acquisition & Control	Customized format per customer specifications Closed circuit, remote control video system available to film all testing Automated time, temperature control for de-icers and anti-icers
Test Section	22" wide x 44" high / 56cm wide x 152cm high test section Features drop-out bottom for full width access to test area Heated, hinged windows on all sides ease access, improve visibility 360° rotation to simulate angle of attack changes Depending on size, article can also be mounted vertically onto fixed plates or extend fore and aft inside the tunnel Test model can protrude outside tunnel in some cases

Clear acrylic insert plates improve visibility and allow more time for testing rather than installation



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