



TORONTECH

AIRCRAFT THERMAL ACOUSTIC INSULATION TESTER



Aircraft Thermal Acoustic Insulation Tester — ToronFT™ ATC

ToronFT™ ATC Aircraft Thermal Acoustic Insulation Tester is a high-precision fire safety testing instrument designed to evaluate the burn-through resistance of thermal and acoustic insulation materials under high-intensity open flame exposure. Based on US Federal Aviation Regulations FAR 25 requirements, the ToronFT™ ATC provides the standardized, controlled flame exposure environment and precision heat flux measurement infrastructure required for aircraft fuselage insulation material certification — ensuring that thermal and acoustic insulation used in transport aircraft can withstand post-crash fire conditions without burn-through.

The burn-through resistance tester features a foil-type Gardon total heat flow density meter (range 0–22.7 W/m², accuracy $\pm 3\%$ of indicated reading), a 16-bit high-precision control board with microcomputer management, real-time result display with dynamic curve plotting, and comprehensive safety protection — all integrated into a system with reasonable structure, stable performance, and easy operation that fully meets the demanding requirements of aviation authority approval programs.

APPLICATIONS

Aircraft Thermal Acoustic Insulation Tester — ToronFT™ ATC Applications

- Aircraft insulation material manufacturers: burn-through resistance qualification of thermal and acoustic insulation for transport aircraft fuselage applications
- Aviation safety testing laboratories: FAR 25 burn-through resistance certification testing for aircraft interior insulation materials
- Aircraft manufacturers (OEMs): incoming material qualification and design validation of fuselage insulation systems

- R&D departments: evaluation of new thermal and acoustic insulation material formulations and constructions for burn-through resistance improvement
- Regulatory compliance programs: burn-through resistance qualification for aviation authority approval and airworthiness certification



Standards

The ToronFT™ ATC supports burn-through resistance testing in compliance with internationally recognized aviation fire safety standards, including:

- US FAR Part 25: Airworthiness standards: transport category airplanes (burn-through resistance requirements for fuselage insulation)

FEATURES

Aircraft Thermal Acoustic Insulation Tester — ToronFT™ ATC Key Features

- Specifically designed for burn-through resistance testing of thermal and acoustic insulation materials per US FAR 25 aviation authority requirements
- Heat flow meter: foil-type Gardon total heat flow density type; measuring range 0–22.7 W/m²; accuracy $\pm 3\%$ of indicated reading — precision heat flux measurement for standard-compliant burn-through assessment
- Back heat flow meter: shareable with front position — reducing equipment cost while maintaining full measurement capability
- Safety protection system: power overload protection, short circuit protection, and control loop overload protection — three independent safety layers
- 16-bit high-precision board + microcomputer control: stable performance, reasonable structure, and easy operation
- Real-time result display: measurement results shown in real time during the test; dynamic curve drawn continuously throughout the event
- Data management: permanently saveable data; data retrieval and printing; report generation directly from the instrument
- Compliant with US FAR 25 the primary US aviation burn-through resistance test standards

THEORY & METHOD

Theory and Method

Burn-through resistance testing evaluates the ability of thermal and acoustic insulation materials to prevent the passage of an open flame from one side to the other — simulating a post-crash fire scenario in which a fuselage fire attempts to penetrate the insulation blanket to reach the aircraft cabin interior. The test exposes one face of the insulation specimen to a high-intensity open flame for the defined test duration, while the heat flux transmitted through the specimen is continuously monitored on the unexposed face using the Gardon-type total heat flow density meter.

The ToronFT™ ATC heat flow meter calibration uses a foil-type Gardon heat flow meter as the back heat flow meter (shareable between front and back positions), with a measuring range of 0–22.7 W/m² and an accuracy of ±3% of the indicated reading. During the test, measurement results are displayed in real time and a dynamic performance curve is plotted continuously, providing a complete picture of the heat flux transmission profile throughout the burn-through test event. The 16-bit high-precision board and microcomputer control system ensure accurate, stable performance with data that can be permanently saved, retrieved, printed, and compiled into test reports directly from the instrument.

TECHNICAL SPECIFICATIONS

Aircraft Thermal Acoustic Insulation Tester — ToronFT™ ATC Technical Specifications

Parameter	Specification
Model	ToronFT™ ATC
Test Application	Burn-through resistance of thermal and sound insulation materials under high-intensity open flame

Parameter	Specification
Heat Flow Meter Type	Foil-type Gardon total heat flow density meter
Heat Flow Measuring Range	0 – 22.7 W/m ²
Heat Flow Accuracy	±3% of indicated reading
Back Heat Flow Meter	Shareable (same Gardon meter used for front and back)
Control Board	16-bit high-precision board + microcomputer
Safety Protections	Power overload, short circuit, control loop overload
Real-Time Display	Yes — results displayed in real time; dynamic curve drawn
Data Output	Permanently saved; retrievable; printable; report-ready
Standard Compliance	FAR 25



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