



TORONTECH

HIGH VOLTAGE LEAKAGE TRACKING TESTER



High Voltage Leakage Tracking Tester - ToronFT™ LTT-HV

ToronFT™ LTT-HV High Voltage Leakage Tracking Tester is an advanced, high-voltage laboratory instrument designed for tests using liquid contaminants and inclined test specimens to evaluate the suitability of solid electrical insulating materials under severe environmental conditions through the measurement and evaluation of resistance to tracking and corrosion. High-voltage leakage tracking testing at elevated voltages (up to 6 kV AC) is required for insulating materials used in high-voltage electrical equipment — where surface tracking and corrosion under contamination represent critical failure modes.

The ToronFT™ LTT-HV features five test stations, a 10 KVA transformer output at AC 0–6 kV $\pm$ 5%, a 1600 mA current capacity, and a sophisticated overcurrent protection system — making it a high-throughput, safe, and accurate platform for high-voltage leakage tracking resistance testing per IEC 60587.

APPLICATIONS

High Voltage Leakage Tracking Tester - ToronFT™ LTT-HV Applications

The ToronFT™ LTT-HV is applicable for high-voltage leakage tracking resistance testing of:

- High-voltage electrical insulating materials for switchgear, transformers, and power distribution equipment requiring high-voltage tracking resistance qualification per IEC 60587
- Outdoor electrical insulation materials — including post insulators, bushing materials, and cable termination compounds — subject to severe contamination environments
- Polymeric insulator materials and housing compounds for high-voltage overhead line and substation applications requiring tracking and erosion resistance testing
- Resin casting materials and epoxy compounds used in high-voltage transformers and switchgear for leakage tracking resistance characterization

- High-voltage equipment component insulating materials in inclined specimen geometry for tracking and corrosion evaluation under liquid contamination
- Research and development of new high-voltage insulating compounds and surface coatings for improved leakage tracking and corrosion resistance



Standards

The ToronFT™ LTT-HV is designed to comply with the following international standards for high-voltage leakage tracking testing:

- IEC 60587: Electrical insulating materials used under severe ambient conditions: Test methods for evaluating resistance to tracking and erosion
- ASTM D2303: Standard Test Methods for Liquid-Contaminant, Inclined-Plane Tracking and Erosion of Insulating Materials
- IEC 60343: Recommended test methods for determining the relative resistance of insulating materials to breakdown by surface tracking in high humidity

FEATURES

High Voltage Leakage Tracking Tester - ToronFT™ LTT-HV Key Features

- Five simultaneous high-voltage leakage tracking test stations — significantly increasing throughput for production quality sampling and large-scale material characterization programs
- High-voltage transformer output: AC 0–6 kV $\pm$ 5% at up to 1600 mA — covering the full voltage range required for high-voltage leakage tracking resistance testing per IEC 60587
- 10 KVA voltage regulator provides stable, precise, and continuously adjustable high-voltage output for accurate and reproducible leakage tracking test conditions
- Automatic overcurrent protection: when high-voltage circuit current reaches or exceeds 60 mA for 2–3 seconds, the overcurrent delay relay automatically cuts off current to protect the specimen and instrument — and the buzzer alarm provides immediate operator notification of leakage tracking test failure
- Press-to-cancel voltage stop button enables safe, immediate manual termination of the high-voltage leakage tracking test at any time during the test sequence

- Standard-size filter paper (thickness 0.15–0.17 mm) provides the standardized liquid contaminant delivery medium required for reproducible inclined specimen leakage tracking test conditions per IEC 60587
- Complies with IEC 60587 and ASTM D2303, providing high-voltage leakage tracking resistance test results recognized by international electrical insulation certification bodies in North America and globally

THEORY & METHOD

Theory and Method

High-voltage leakage tracking and erosion testing applies a high alternating voltage across an inclined solid insulating specimen continuously wetted with a liquid contaminant. Under the combined action of high-voltage electric stress and surface contamination, leakage current flows across the specimen surface. If the surface resistance is insufficient, the leakage current generates localized heating, leading to tracking — the progressive formation of conductive carbonized channels across the insulation surface — or erosion — surface material loss without carbon track formation. The test evaluates the material's ability to resist both failure modes under specified high-voltage and contamination conditions.

In the ToronFT™ LTT-HV, the transformer delivers AC output voltage from 0 to 6 kV $\pm$ 5% at up to 1600 mA through five independent test stations simultaneously. When the high-voltage circuit current reaches or exceeds 60 mA for 2–3 seconds at any test station, the overcurrent delay relay automatically cuts off the current, and the buzzer alarm indicates the product has failed the high-voltage leakage tracking test — improving safety and ensuring reliable test termination. The voltage regulator (10 KVA) provides stable, adjustable high voltage output. Filter paper (thickness 0.15–0.17 mm, made to standard size requirements) is used as the liquid contaminant delivery medium for the inclined specimen leakage tracking test.

TECHNICAL SPECIFICATIONS

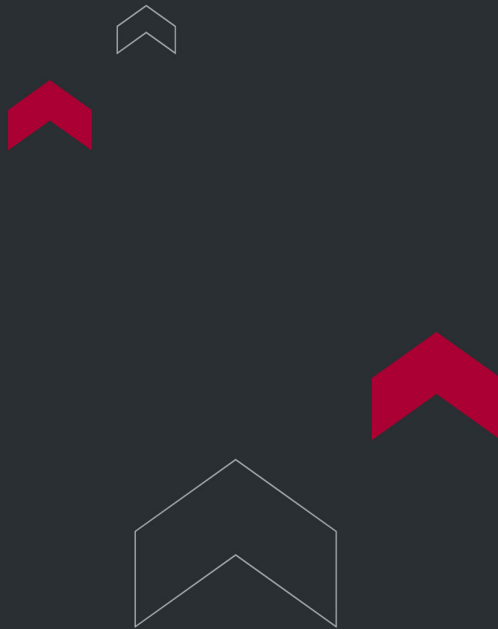
High Voltage Leakage Tracking Tester - ToronFT™ LTT-HV Technical Specifications

Component / Parameter	Specification Details
General Information	
Product Name	High Voltage Leakage Tracking Tester — ToronFT™ LTT-HV
Model	ToronFT™ LTT-HV
Compliance Standards	IEC 60587; ASTM D2303
Test Stations	5 stations (simultaneous testing)
High Voltage & Power System	
Output Voltage	AC 0-6 kV (±5%)
Output Current Capacity	1600 mA
Transformer & Regulator	- Transformer Power/Capacity: 10 kVA - Voltage Regulator: 10 kVA
Total Equipment Power	10 kW
Voltage	AC 220V ±10% / 50Hz (Requires independent power supply circuit) (110V is also available)
Test Circuit & Protection	
Test Loop Current	60 mA (monitoring)
Overcurrent Trip / Protection	60 mA ± 6 mA (2-3 seconds action delay)
Protection Devices	Overcurrent delay relay; automatic current cut-off; audible (buzzer) and visual alarm; voltage stop button
General Safety Protection	Power overload protection, short circuit protection, and control circuit overload protection

Component / Parameter	Specification Details
Dropping & Contaminant System	
Flow Rate Range	0.075–0.9 mL/min (adjustable)
Drip Interval	0–99.99 s (settable)
Drip Height	Adjustable
Contaminant Solution	- Composition: NH₄Cl + Nonionic Wetting Agent + Distilled Water - Resistivity: 3.95 ±0.05 Ω·m (at 23°C)
Electrode System & Accessories	
Electrode Material	304 Stainless Steel
Electrode Thickness	0.5 mm
Electrode Spacing	50 ± 0.5 mm
Filter Paper Thickness	0.15–0.17 mm (standard size)
Chamber Construction & Structure	
External Dimensions	1200 × 610 × 1050 mm
Work Box Dimensions	950 × 600 × 900 mm (Volume: Approx. 0.5 m³)
Structure & Box Material	Integral type with observation window; Electrostatic sprayed steel plate (stainless steel optional)
Internal Components	304 Stainless Steel (corrosion resistant and durable)
Exhaust System	Included (requires connection to an external exhaust duct)
Control System & Software	
Control Method	PLC control

Component / Parameter	Specification Details
Data Handling	Automatic recording and result output
Operating Environment	
Operating Temperature	23 ± 2°C
Shutdown Ambient Temp	0-45°C
Air Pressure	86-106 kPa

For more information, pricing, or to request a quotation, please contact ToronFT. Specifications are subject to change without prior notice.



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