

AUTOMOTIVE WIRE FLAME PROPAGATION TESTER



Automotive Wire Flame Propagation Tester — ToronFT™ FP-AW

ToronFT™ FP-AW Automotive Wire Flame Propagation Tester is a precision flame propagation testing instrument designed to evaluate the resistance of vehicle wires to flame propagation under controlled combustion conditions. By exposing wire specimens to a standardized methane gas flame and assessing whether ignited sections self-extinguish without propagating flame beyond the specified limit, the ToronFT™ FP-AW provides the flame propagation resistance data required for automotive and transportation wire and cable fire safety qualification.

The vehicle wire flame propagation tester is fabricated using laser cutting, bending, welding, and electrostatic high-temperature baking paint processes, with a 1.2 mm steel plate construction, a precision $\Phi 9.0$ mm nozzle burner approximately 100 mm long with flame adjustment function, automatic process control with flow meter and pressure regulation, and a 220V/50Hz power supply — providing a complete, automated flame propagation test platform for vehicle wire qualification per ISO 6722.

APPLICATIONS

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Applications

- Automotive wire and harness manufacturers: flame propagation resistance qualification for vehicle electrical wiring
- Transportation vehicle manufacturers: wire fire safety compliance testing for cars, trucks, buses, and commercial vehicles
- Third-party automotive testing laboratories: ISO 6722 flame propagation resistance testing for wire and cable certification

- Quality assurance departments: production-lot and incoming inspection flame propagation resistance sampling for vehicle wiring
- R&D departments: evaluation of new wire insulation materials and jacketing compounds for improved flame propagation resistance



Standards

The ToronFT™ FP-VW supports vehicle wire flame propagation resistance testing in compliance with internationally recognized automotive wiring standards, including:

- ISO 6722-1: Road vehicles — 60 V and 600 V single-core cables — Part 1: Dimensions, test methods, and requirements for copper conductor cables
- ISO 6722-2: Road vehicles — 60 V and 600 V single-core cables — Part 2: Dimensions, test methods, and requirements for aluminium conductor cables

FEATURES

Automotive Wire Flame Propagation Tester — ToronFT™ FP-AW Key Features

- Designed for vehicle wire resistance to flame propagation testing — compliant with ISO 6722 requirements
- Fabrication: laser cutting, bending, welding, electrostatic high-temperature baking paint — precision, durable construction
- Steel plate thickness: 1.2 mm — robust, dimensionally stable combustion chamber
- Combustion chamber dimensions (W×H×D): 1200 mm × 800 mm × 600 mm
- Automatic process control with flow meter and pressure regulation (auto-ignition) — repeatable, consistent test conditions
- Nozzle: $\Phi 9.0$ mm; approximately 100 mm long; with flame adjustment function — standardized burner geometry
- Blue flame temperature: $(950 \pm 50)^{\circ}\text{C}$ — standard-specified flame temperature per ISO 6722
- Flame application time and burning time: independently adjustable — flexible for all wire sizes and test protocols
- Gas source: methane gas, purity $\geq 95\%$
- Pressure display: 0–0.15 MPa gauge

- Voltage: 220V / 50Hz (110V is also available)

THEORY & METHOD

Theory and Method

The vehicle wire flame propagation resistance test mounts a defined length of wire specimen in the vertical orientation within the combustion chamber and applies the standardized $\Phi 9.0$ mm nozzle burner flame at the specified blue flame temperature of $(950 \pm 50)^{\circ}\text{C}$ for the defined application time. After the flame is removed, the test evaluates whether the burning specimen self-extinguishes within the acceptance limit and whether flame propagation beyond the measurement mark has occurred.

The methane gas (purity $\geq 95\%$) is supplied at a controlled pressure (0–0.15 MPa, gauge display) through the flow meter and pressure regulation system with auto-ignition, ensuring consistent, reproducible flame characteristics for every test. The combustion chamber (Width $\times$ Height $\times$ Depth: 1200 mm $\times$ 800 mm $\times$ 600 mm) is fabricated from 1.2 mm steel plate using laser precision manufacturing with electrostatic high-temperature baking paint finish. Flame application time and burning time are independently adjustable to accommodate different wire sizes and standard-specified test durations. Power supply: 220V/50Hz.

TECHNICAL SPECIFICATIONS

Automotive Wire Flame Propagation Tester — ToronFT™ FP-AW Technical Specifications

Parameter	Specification
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Fabrication Method	Laser cutting, bending, welding, electrostatic high-temperature baking paint
Steel Plate Thickness	1.2 mm
Combustion Chamber Dimensions (W×H×D)	1200 mm × 800 mm × 600 mm
Process Control	Automatic (flow meter + pressure regulation + auto-ignition)
Nozzle Diameter	Φ9.0 mm
Nozzle Length	~100 mm (with flame adjustment function)
Blue Flame Temperature	(950 ± 50)°C
Flame Application Time	Adjustable
Burning Time	Adjustable
Gas Source	Methane gas, purity ≥ 95%
Pressure Display	0 - 0.15 MPa (gauge)
Voltage	220V / 50Hz (110V is also available)
Standard Compliance	ISO 6722



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