

AVIATION COMPONENT FIRE PROTECTION TESTER



Aviation Component Fire Protection Tester - ToronFT™ FP-AHP

ToronFT™ FP-AHP is a specialized fire protection tester for aviation hose and hard pipe components, engineered to evaluate the fire resistance of fluid-carrying hose and pipe assemblies installed in civil aircraft fuel and hydraulic systems. The system is designed to test a comprehensive range of aviation fluid-line components including serpentine tubes, pipeline connectors, and hose assemblies with protective sleeves, providing the rigorous fire exposure testing required for aviation safety certification.

The ToronFT™ FP-AHP is purpose-built for assessing the ability of aviation hoses and rigid pipe assemblies to maintain structural integrity and fluid containment in potential fire zones — critical safety locations where flammable liquids are transported and where fire exposure is a foreseeable hazard. This instrument complies with internationally recognized aviation industry standards.

APPLICATIONS

Aviation Component Fire Protection Tester - ToronFT™ FP-AHP

Applications

- Fire resistance testing of civil aircraft hydraulic hose assemblies and fuel line components
- Fire protection evaluation of serpentine tubes used in aircraft fluid distribution systems
- Testing of pipeline connectors and couplings for fire zone compliance in aviation applications
- Fire resistance assessment of hose assemblies with protective sleeves for aircraft engine and airframe installations
- Certification testing of aviation hard pipe (rigid tubing) components for fire zone qualification
- Research and development testing of new aviation fluid line materials and fire protection systems



FEATURES

Aviation Component Fire Protection Tester - ToronFT™ FP-AHP Key Features

- Complete, integrated test system comprising: burner, vibration mechanism, combustion test bench, exhaust hood, temperature measurement equipment, oil circulation and heating equipment
- Gun-type structure, liquid fuel burner for consistent, high-energy flame generation representative of aircraft fire zone conditions
- Burner spray nozzle angle of 80° with nominal fuel flow rate of 8.5 L/h, producing standardized aviation fire test flame characteristics
- Pipe end equipped with a 318 mm long flat tapered extension tube; extension tube outlet height of 152 mm and width of 280 mm for precise flame geometry
- Integrated fuel pressure regulator for fine adjustment of fuel flow rate, ensuring the flame consistently meets standard flame requirements
- Exhaust hood for safe capture and removal of combustion gases during testing
- Temperature measurement system for real-time monitoring of flame and specimen temperatures throughout the fire test
- Oil circulation and heating equipment for stable, consistent fuel conditioning and delivery during extended test sequences
- Suitable for testing serpentine tubes, pipeline connectors, and hose assemblies with protective sleeves as used in civil aircraft fluid systems

THEORY & METHOD

Theory and Method

The ToronFT™ FP-AHP subjects aviation hose and hard pipe specimens to a controlled, standardized open flame produced by a gun-type liquid fuel burner. The burner delivers a calibrated flame at a defined spray angle and nominal fuel flow rate, producing a flame with the thermal characteristics specified by aviation fire test standards. The specimen is positioned in the flame zone on the combustion test bench, and the test duration is controlled to replicate the fire exposure scenario defined by the applicable standard.

The combustion system includes a fuel pressure regulator to precisely control the fuel flow rate, ensuring the flame consistently achieves the standard flame characteristics — including the 1100°C standard flame temperature required by SAE AIR 1377 and related aerospace fire test methods. An exhaust hood collects combustion products, while the temperature measurement system monitors test conditions throughout the exposure period. Oil circulation and heating equipment maintain consistent fuel properties during testing.

TECHNICAL SPECIFICATIONS

Aviation Component Fire Protection Tester - ToronFT™ FP-AHP Technical Specifications

Parameter	Specification
Product Name	Aviation Component Fire Protection Tester
Brand	ToronFT™ FP-AHP
Burner Type	Gun-type, liquid fuel burner
Nozzle Spray Angle	80°

Parameter	Specification
Nominal Fuel Flow Rate	8.5 L/h
Extension Tube Length	318 mm (flat tapered)
Extension Tube Outlet Height	152 mm
Extension Tube Outlet Width	280 mm
Standard Flame Temperature	1100°C (per SAE AIR 1377)
Fuel Pressure Control	Integrated fuel pressure regulator
System Components	Burner, vibration mechanism, combustion test bench, exhaust hood, temperature measurement, oil circulation and heating equipment



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