



THERMAL PROTECTIVE PERFORMANCE TESTER

Thermal Protective Performance Tester - ToronFT™ TPT

ToronFT™ TPT Thermal Protective Performance Tester is a large-scale radiation and conduction thermal protection test apparatus designed for evaluating the thermal protection performance of industrial protective clothing, equipment covers, and thermally protective materials when exposed to radiant and conductive heat sources — including simulated pool fire conditions. Thermal protection testing is essential for qualifying protective equipment used in high-heat industrial environments such as oil and gas, petrochemical, foundry, smelting, and firefighting operations.

The ToronFT™ TPT features an adjustable curved-surface test frame that can be fitted to different sample surface geometries, a computer-controlled guide rail distance adjustment system, a mobile module for fuel pan positioning, and a 3.0 m × 0.5 m gasoline fuel pan (depth 100 mm, water layer minimum 15 mm) providing a realistic, large-scale radiant heat exposure environment for thermal protection performance testing of industrial protective equipment.

APPLICATIONS

Thermal Protective Performance Tester - ToronFT™ TPT Applications

The ToronFT™ TPT is applicable for thermal protection testing of industrial equipment and protective materials in the following applications:

- Thermal protection performance testing of industrial protective coveralls and clothing for oil and gas, petrochemical, and foundry environments
- Evaluation of equipment thermal shields, covers, and insulating jackets for thermal protection under radiant and conductive heat exposure
- Large-scale pool fire radiant heat exposure testing of protective materials and system assemblies
- Thermal protection qualification of proximity fire-fighting suits and approach suits for industrial fire response

- Research and development of new thermally protective materials and multi-layer composite systems for industrial equipment and PPE applications
- Type testing and certification of industrial thermal protection equipment against applicable international performance standards



Standards

The ToronFT™ TPT is designed to support compliance with the following international standards for industrial thermal protection testing:

- ISO 9151: Protective clothing against heat and flame: Determination of heat transmission on exposure to flame
- ISO 6942: Protective clothing: Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat
- NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting
- EN ISO 15025: Protective clothing: Protection against flame — Method of test for limited flame spread

FEATURES

Thermal Protective Performance Tester - ToronFT™ TPT Key Features

- Curved-surface test frame fitted with hollow circular tubes that can be adjusted to match different sample surface geometries — providing a versatile thermal protection test fixture for a wide range of industrial protective equipment shapes and sizes
- Computer-controlled guide rail caster system at the base of the test frame enables precise, repeatable adjustment of the distance between the sample and the fuel pan — a critical parameter for controlling the radiant heat flux delivered during thermal protection testing
- Mobile module provides additional, independent control of the distance between the test stand and the fuel pan, enabling fine-tuning of the radiant heat exposure during the thermal protection test
- Adjustable guide rail system controls the fixed column alignment to ensure the columns precisely conform to the sample surface — maintaining standardized sample mounting and thermal contact for reproducible thermal protection results

- Steel wire clip and column fixing system securely holds test specimens to the curved frame during radiant heat exposure, preventing specimen movement during the thermal protection test
- Large 3.0 m × 0.5 m gasoline fuel pan with a pool depth of 100 mm provides a realistic, large-scale radiant heat source for thermal protection testing — simulating industrial pool fire conditions; bottom water layer must be maintained between 15 mm and 50 mm
- Gasoline fuel base creates high-intensity, sustained radiant heat exposure representative of industrial fire scenarios — providing demanding and realistic conditions for thermal protection qualification testing

THEORY & METHOD

Theory and Method

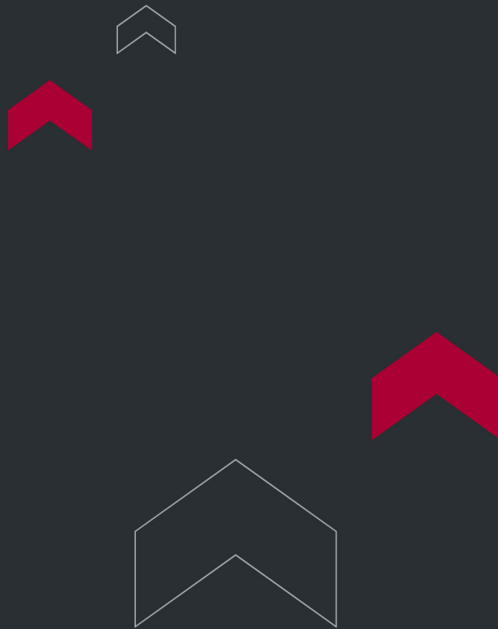
Industrial thermal protection testing evaluates the ability of a protective material or equipment assembly to limit heat transfer to the protected surface (or person) when exposed to a defined radiant or conductive heat flux. The rate and quantity of heat transmitted through the protective system determines the time available before the threshold of pain or injury is reached — a critical parameter in protective equipment design and specification.

In the ToronFT™ TPT, the test specimen is mounted on the curved-surface test frame, which is fitted to the sample surface geometry using the adjustable column and steel wire clip fixture system. The computer-controlled guide rail caster system precisely positions the test frame at the specified distance from the 3.0 m × 0.5 m gasoline fuel pan (depth 100 mm, water base layer 15–50 mm). The mobile module provides additional control of the distance between the test stand and the fuel pan during the radiant heat exposure test. The adjustable guide rail system ensures the fixed columns conform to the sample surface geometry for accurate thermal contact and standardized heat flux delivery throughout the thermal protection test.

TECHNICAL SPECIFICATIONS

Thermal Protective Performance Tester - ToronFT™ TPT Technical Specifications

Parameter	Specification
Product Name	Thermal Protective Performance Tester — ToronFT™ TPT
Test Apparatus	Curved-surface frame with hollow circular tubes, fitted to sample surfaces; guide rail casters (computer-controlled)
Distance Control	Computer-controlled guide rail casters (sample to oil tank); mobile module (test stand to fuel pan)
Column Fixing	Steel wire clips and column clamps; adjustable guide rail for surface conformance
Fuel Pan Dimensions	3.0 m × 0.5 m; depth 100 mm
Fuel Type	Gasoline
Fuel Depth Limit	≤50 mm from top; water layer ≥15 mm from bottom
Heat Transfer Mode	Radiation and conduction
Compliance Standards	ISO 6942; ISO 9151; NFPA 1971



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