



TORONTECH

SOFT FURNITURE IGNITION RESISTANCE TESTER



Soft Furniture Ignition Resistance Tester - ToronFT™ F-IR

ToronFT™ F-IR Soft Furniture Ignition Resistance Tester is a precision laboratory instrument designed to evaluate the ignition resistance properties of upholstered soft furniture — including sofas, chairs, and spring mattresses — using a simulated match flame ignition source. Upholstered furniture ignition resistance is a critical fire safety parameter — residential and commercial upholstered furniture that ignites easily from small, accidental flame sources (such as a dropped match or lighter) can rapidly grow into a life-threatening fire.

The ToronFT™ F-IR uses a controlled match flame simulation via a precisely dimensioned stainless steel burning pipe and a calibrated flow control system to evaluate the ignition resistance of furniture cover fabrics, padding materials, and sofa/mattress assemblies. It complies with ISO 8191-1, ISO 8191-2, and EN 597-1 and 597-2 — the primary international standards for soft furniture and mattress ignition resistance testing.

APPLICATIONS

Soft Furniture Ignition Resistance Tester - ToronFT™ F-IR Applications

The ToronFT™ F-IR is applicable for ignition resistance testing of the following soft furniture and upholstered product types:

- Upholstered sofas and chairs — cover fabrics, filling materials, and composite assemblies — for ignition resistance qualification per ISO 8191 and EN 597
- Spring mattresses and mattress assemblies for ignition resistance compliance testing per ISO 8191-1 and EN 597-1
- Foam-padded soft furniture components requiring ignition resistance characterization with a simulated match flame source
- Upholstered furniture cover fabrics and interliners for ignition resistance qualification independently and in composite assemblies

- Children's furniture and nursery upholstered products requiring ignition resistance safety certification
- Research and development of ignition-resistant upholstery fabrics, padding materials, and sofa/mattress composite constructions



Standards

The ToronFT™ F-IR is designed to comply with the following international standards for soft furniture and mattress ignition resistance testing:

- ISO 8191-1: Furniture: Assessment of the ignitability of upholstered furniture — Part 1: Ignition source: smouldering cigarette
- ISO 8191-2: Furniture: Assessment of the ignitability of upholstered furniture — Part 2: Ignition source: match flame equivalent
- EN 597-1: Furniture: Assessment of the ignitability of mattresses and upholstered bed bases — Part 1: Ignition source: smouldering cigarette
- EN 597-2: Furniture: Assessment of the ignitability of mattresses and upholstered bed bases — Part 2: Ignition source: match flame equivalent
- ASTM E1590: Standard Test Method for Fire Testing of Mattresses

FEATURES

Soft Furniture Ignition Resistance Tester - ToronFT™ F-IR Key Features

- Simulated match flame ignition source delivered via precision stainless steel burning pipe — replicates the real-world ignition scenario of an accidentally dropped match for standardized furniture and sofa ignition resistance testing per ISO 8191-2 and EN 597-2
- Precisely dimensioned gas delivery hose: length 2.5–3 mm, inner diameter 71 mm, connected to the stainless steel burning pipe — ensuring consistent flame geometry and gas flow conditions for reproducible furniture ignition resistance test results
- Precision flow control system comprising flow meter, fine-tuning valve, switch valve, and pressure regulating valve maintains the gas flow rate at 45 ± 2 ml/min for the exact match flame simulation required by ISO 8191-2 and EN 597-2

- Nominal output pressure of 2.8 kPa ensures correct match flame equivalent combustion characteristics for standardized sofa, upholstery, and mattress ignition resistance testing
- Microcomputer control system automates flame application timing, test sequence management, and data logging for ISO 8191 and EN 597 compliant furniture ignition resistance test documentation
- Suitable for testing the full range of upholstered soft furniture — including sofas, chairs, and spring mattresses — in both composite assembly and individual component configurations for comprehensive ignition resistance characterization
- Complies with ISO 8191-1, ISO 8191-2, EN 597-1, and EN 597-2, providing internationally recognized furniture and sofa ignition resistance test results accepted by certification bodies in North America and Europe

THEORY & METHOD

Theory and Method

Furniture ignition resistance testing evaluates whether upholstered furniture or mattress assemblies will ignite and sustain combustion when exposed to a defined small flame ignition source — simulating the accidental ignition scenario of a dropped match or lighter. The match flame equivalent test applies a calibrated gas flame from a stainless steel burning pipe to the surface of the furniture specimen for a defined duration, and the specimen is subsequently observed for ignition, smoldering, or progressive combustion.

In the ToronFT™ F-IR, the match flame simulation is delivered through the stainless steel burning pipe connected to a precisely calibrated flow control system. The hose connecting the gas supply to the burning pipe has a length of 2.5–3 m and an inner diameter of 71 mm, ensuring the correct gas flow geometry for match flame simulation. The flow control system — comprising a flow meter, fine-tuning valve, switch valve, and pressure regulating valve — maintains the gas flow rate at 45 ± 2 ml/min and the nominal output pressure at 2.8 kPa. These precisely controlled conditions produce a reproducible match flame equivalent for standardized furniture ignition resistance testing. The microcomputer control system manages the test sequence, flame application timing, and data recording for ISO 8191 and EN 597-compliant ignition

resistance test documentation.

TECHNICAL SPECIFICATIONS

Soft Furniture Ignition Resistance Tester - ToronFT™ F-IR Technical Specifications

Component / Parameter	Specification Details
General Information	
Product Name	Micro-Controlled Soft Furniture Spring Mattress and Sofa Ignition Resistance Tester
Model	ToronFT™ F-IR
Applicable Products	Upholstered sofas, chairs, spring mattresses, upholstered bed bases
Compliance Standards	ISO 8191-1; ISO 8191-2; EN 597-1; EN 597-2
Equipment Composition	Combustion chamber (test chamber), ignition source device (cigarette/match/woodpile), test platform, and computer control system with operating software
Combustion Chamber & Test Platform	
Chamber Dimensions	2.5 × 2.8 × 2.4 m (L × W × H)
Chamber Structure	Steel frame + painted shell
Air Inlet & Airflow	- Air Inlet: 500 × 200 mm (located on both sides) - Airflow Velocity: 0.02–0.2 m/s
Door Dimensions	2.0 × 1.0 m (walk-in door equipped with an observation window)

Component / Parameter	Specification Details
Exhaust System	Top-mounted smoke exhaust system
Test Platform	- Structure: Steel platform with a flat and stable surface - Maximum Sample Size: $\leq 2.0 \times 1.8$ m (mattress)
Ignition Source System	
1. Simulated Match Flame	- Combustion Tube: Stainless steel burning pipe; $\varnothing 8$ mm (outer diameter), 200 mm length - Ignition Distance: 20–80 mm (adjustable)
2. Cigarette Smoldering	- Dimensions: Length 55 ± 5 mm; Diameter 8 ± 0.5 mm - Burning Time: 12 ± 3 min per 50 mm
3. Wood Stack Source	Standard configuration includes one set (consumable)
Gas Control & Timing System	
Flow Control System	Includes flow meter, fine-tuning valve, switch valve, and pressure regulating valve
Gas Flow & Pressure	- Nominal Output Pressure: 2.8 kPa - Standard Gas Flow Rate: 45 ± 2 mL/min - Flow Rate Range: 10–100 mL/min
Hose Specifications	Length: 2.5–3 mm; Inner Diameter: 71 mm
Timing & Recording	- Timing Range: 0–99.99 h (adjustable) - Recordable Data: Afterburning time, smoldering time, extinguishing time
Control System & Software	
Hardware Configuration	Microcomputer (PC) + Data Acquisition Card
Operation Method	- Operation Method: Guided software menu - Ignition Method: Manual
Software Capabilities	Automatic setting and recording of test parameters, data storage, curve display, and report output (includes lifetime upgrades)

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



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

