

SPRINKLER STATIC ACTION TEMPERATURE BATH TESTER



Sprinkler Static Action Temperature Bath Tester — ToronFT™ SSA

ToronFT™ SSA Sprinkler Static Action Temperature Bath Tester is a dual-medium thermal testing instrument designed for the static operating temperature evaluation of fire sprinkler heads using both water bath and oil bath heating methods. By providing two independent sample areas — one for water bath and one for oil bath — within a single instrument with a shared control system, the ToronFT™ SSA enables laboratories to process up to 10 sprinkler heads simultaneously across both media, maximizing throughput and minimizing test cycle time.

The nozzle static action temperature testing machine supports the full sprinkler static activation temperature test protocol: for sprinkler heads with operating temperatures not exceeding 79°C, the water bath is used; for heads with operating temperatures above 79°C, the oil bath is used. The programmable deciliter heating system provides precise, controllable temperature ramps throughout the test sequence.

APPLICATIONS

Sprinkler Static Action Temperature Bath Tester Applications

- Fire sprinkler manufacturers: static activation temperature qualification testing for production and certification
- Third-party certification and listing laboratories: static operating temperature determination per international sprinkler standards
- Quality assurance departments: incoming inspection and batch sampling of sprinkler temperature ratings
- R&D departments: evaluation of new heat-sensitive element designs, bulb fluids, and fusible link formulations across temperature classes
- Thermal stability research: characterization of sprinkler activation behavior under controlled static heating conditions



FEATURES

Sprinkler Static Action Temperature Bath Tester — ToronFT™ SSA Key Features

- Dual-medium design: one instrument with two independent sample areas: water bath area and oil bath area — sharing a single control system
- Accommodates up to 10 sprinkler heads per test run: maximizing throughput for production and certification programs
- Water bath for sprinklers with operating temperatures $\leq 79^{\circ}\text{C}$; oil bath for operating temperatures $> 79^{\circ}\text{C}$ — covering all standard sprinkler temperature classifications
- Programmable deciliter heating system: precise, controllable heating rate for accurate $(0.5 \pm 0.1)^{\circ}\text{C}/\text{min}$ ramp compliance
- Test protocol: heat from room temperature to 20°C below nominal operating temperature, stabilize, then ramp at $(0.5 \pm 0.1)^{\circ}\text{C}/\text{min}$ to activation
- Note: this instrument does not include the thermal stability test (Section 7.7-1); a separate instrument is required for that sub-test
- Compact, dual-area configuration reduces laboratory footprint compared to two separate single-medium instruments
- Intuitive shared control panel for independent programming of each bath area

THEORY & METHOD

Theory and Method

The static action temperature test determines the temperature at which a sprinkler's heat-sensitive element activates under slow, controlled heating conditions. The test begins by placing at least 10 sprinkler heads in the appropriate bath medium (water for operating temperatures $\leq 79^{\circ}\text{C}$; oil for operating temperatures $> 79^{\circ}\text{C}$). Starting from room temperature, the bath is heated to 20°C below the sprinkler's nominal operating temperature, held at that temperature to stabilize, and then raised at a rate of $(0.5 \pm 0.1)^{\circ}\text{C}/\text{min}$ until the sprinkler operates.

The ToronFT™ SSA achieves this precise, low-rate temperature ramp using a programmable deciliter heating system, which is designed to maintain the specified ramp rate regardless of the nominal operating temperature of the specimens under test. The dual-area design means that water bath and oil bath tests can run concurrently, reducing total test time for facilities evaluating sprinklers across multiple temperature classes.

TECHNICAL SPECIFICATIONS

Sprinkler Static Action Temperature Bath Tester — ToronFT™ NSA
Technical Specifications

Parameter	Specification
Model	ToronFT™ SSA
Sample Areas	Two: water bath area and oil bath area (shared control system)
Number of Samples (per run)	10 sprinkler heads
Water Bath Application	Operating temperature $\leq 79^{\circ}\text{C}$
Oil Bath Application	Operating temperature $> 79^{\circ}\text{C}$
Heating Rate	Programmable deciliter; $(0.5 \pm 0.1)^{\circ}\text{C}/\text{min}$ final ramp rate
Test Ramp Profile	Room temp $\rightarrow$ (Nominal - 20°C) hold $\rightarrow$ ramp at $(0.5 \pm 0.1)^{\circ}\text{C}/\text{min}$ to activation

Parameter	Specification
Thermal Stability Sub-test (7.7-1)	Not included (separate instrument required)



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