

SPRINKLER ULTRA-HIGH TEMPERATURE TEST CHAMBER



Sprinkler Ultra-High Temperature Test Chamber — ToronFT™ SW-UHT

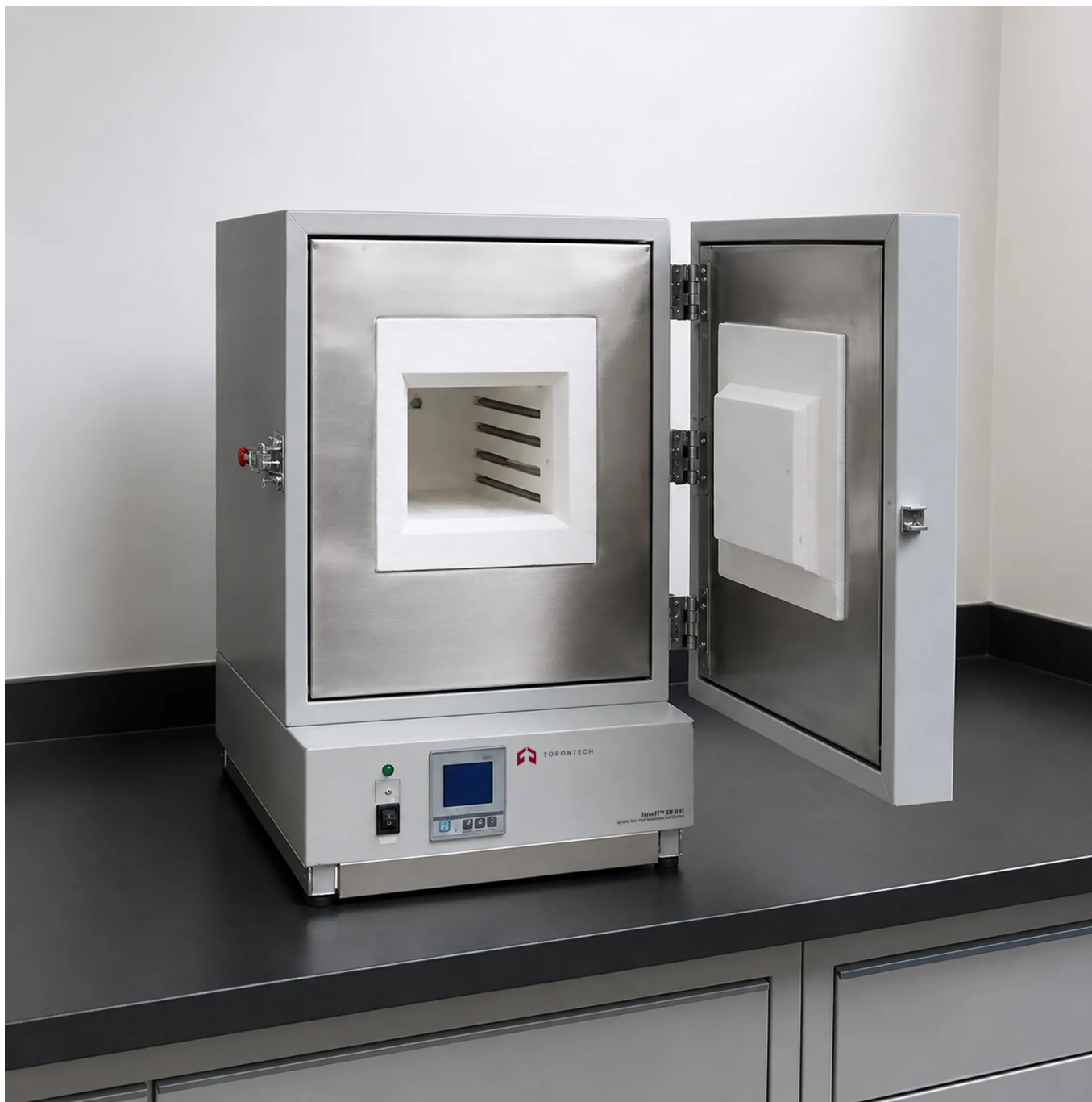
ToronFT™ SW-UHT Sprinkler Ultra-High Temperature Test Chamber is a high-performance thermal testing instrument specifically designed for the high-temperature resistance evaluation of fire sprinkler assemblies. Built to deliver precisely controlled temperatures up to 1000°C with excellent uniformity and stability, the ToronFT™ SW-UHT enables manufacturers and testing laboratories to qualify sprinklers for extreme thermal exposure scenarios in accordance with international fire protection standards.

The ultra-high temperature test chamber features an arbitrarily adjustable heating rate (1–40°C/min), precise temperature control accuracy of $\pm 1^\circ\text{C}$, and outstanding temperature uniformity across its test volume — making it an indispensable instrument for high-temperature resistance qualification, heat-sensing element evaluation, and thermal durability research.

APPLICATIONS

Sprinkler Ultra-High Temperature Test Chamber — ToronFT™ SW-UHT Applications

- Fire sprinkler manufacturers: high-temperature resistance qualification and heat-sensing release mechanism evaluation
- Third-party certification and listing laboratories: ultra-high temperature testing per international sprinkler standards
- R&D departments: thermal durability assessment of new sprinkler materials, bulb fluids, and fusible elements
- Fire extinguisher and suppression system component testing: high-temperature performance verification
- Academic and industrial research: materials characterization under extreme thermal loading



FEATURES

Sprinkler Ultra-High Temperature Test Chamber — ToronFT™ SW-UHT Key Features

- Ultra-high operating temperature: normal ambient temperature up to 1000°C — covering the full range of sprinkler high-temperature resistance tests
- Arbitrarily adjustable heating rate: 1–40°C/min — flexible ramp control to match any standard-specified heating profile
- Precise temperature control accuracy: $\pm 1^\circ\text{C}$ — ensuring repeatable, standard-compliant test conditions
- Excellent temperature uniformity: $\pm 1\%$ in the 100–400°C range; $\pm 0.8\%$ in the 500–1000°C range
- Designed specifically for sprinkler high-temperature resistance testing per international protocols
- Robust chamber construction for sustained high-temperature operation with minimal maintenance
- Intuitive control interface for straightforward temperature and time programming

THEORY & METHOD

Theory and Method

The standard high-temperature resistance test procedure for sprinklers involves removing the temperature-sensing release mechanism from two sprinkler assemblies and placing the specimens upright in the test chamber. The chamber is then raised to the target temperature of $(800 \pm 10)^\circ\text{C}$ and held for 15 minutes, after which the sprinkler thread is clamped and the assembly is immediately immersed in water at $(15 \pm 5)^\circ\text{C}$. The specimen is then inspected to determine whether the nozzle body has been deformed or damaged.

The ToronFT™ SW-UHT achieves and maintains the required thermal conditions through high-efficiency resistance heating elements and a precision PID control system that continuously monitors chamber temperature and adjusts power delivery to maintain the set-point within $\pm 1^{\circ}\text{C}$. The adjustable heating rate ($1\text{--}40^{\circ}\text{C}/\text{min}$) allows the operator to match the ramp profiles specified by different test standards and product specifications.

TECHNICAL SPECIFICATIONS

Sprinkler Ultra-High Temperature Test Chamber — ToronFT™ SW-UHT

Technical Specifications

Parameter	Specification
Model	ToronFT™ SW-UHT
Temperature Range	Normal ambient temperature - 1000°C
Heating Rate	1-40°C/min (arbitrarily adjustable)
Temperature Control Accuracy	$\pm 1^{\circ}\text{C}$
Temperature Uniformity (100-400°C)	$\pm 1\%$
Temperature Uniformity (500-1000°C)	$\pm 0.8\%$
Primary Application	High-temperature resistance test of fire sprinklers



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