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SPRINKLER TUMBLING TESTER

Sprinkler Tumbling Tester — ToronFT™ ST

ToronFT™ ST Sprinkler Tumbling Tester is a mechanical durability testing instrument designed to evaluate the resistance of fire sprinkler assemblies to the physical stresses of tumbling — simulating the handling, packaging, and transportation impacts encountered throughout the sprinkler supply chain. By subjecting specimens to a controlled 3 mm tumbling test within a precision hexagonal prism-shaped test box, the ToronFT™ ST ensures that sprinklers reach installation sites in sound mechanical condition and fully capable of meeting their rated performance requirements.

The sprinkler tumbling tester is suitable for all sprinkler types except dry sprinklers, and processes five specimens per test cycle in accordance with international fire protection qualification standards.

APPLICATIONS

Sprinkler Tumbling Tester — ToronFT™ ST Applications

- Fire sprinkler manufacturers: tumbling resistance qualification testing for production and certification programs
- Third-party certification and listing laboratories: mechanical durability testing per international sprinkler standards
- Packaging and logistics quality assurance: verification that packaging systems adequately protect sprinklers during distribution
- R&D departments: evaluation of new sprinkler frame and body designs for mechanical impact resistance
- Incoming inspection programs: verification of sprinkler condition after transportation and storage

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ToronFT™ ST - Sprinkler Tumbling Tester

FEATURES

Sprinkler Tumbling Tester — ToronFT™ ST Key Features

- Designed specifically for sprinkler tumbling tests — applicable to all sprinkler types except dry sprinklers
- Processes five sprinkler specimens per test cycle for efficient batch testing
- Six-diamond cylindrical test box: constructed from six B-baked resin plates, 305 mm (L) × 254 mm (W) — standardized geometry for reproducible tumbling impacts
- Regular hexagonal prism-shaped box made of vinyl resin material for durable, consistent tumbling surface
- 3 mm tumbling test protocol per international sprinkler qualification requirements
- Compact, self-contained apparatus design for easy laboratory installation and operation
- Robust construction for sustained use in production quality control and certification environments

THEORY & METHOD

Theory and Method

The tumbling test evaluates a sprinkler's ability to withstand repeated low-energy mechanical impacts by placing five sprinklers individually into a regular hexagonal prism-shaped test box constructed from vinyl resin-baked resin plates. Each sprinkler is subjected to a 3 mm tumbling sequence, during which the specimen experiences repeated controlled impacts against the interior surfaces of the hexagonal enclosure as the box rotates.

The six-diamond cylindrical box geometry — with a length of 305 mm and a width of 254 mm — provides a standardized tumbling path that delivers consistent, reproducible impact energy to each specimen. After tumbling, sprinklers are inspected for mechanical damage, frame deformation, deflector distortion, or any condition that could impair hydraulic performance or activation reliability, and are then subjected to a post-tumble functional test.

Sprinkler Tumbling Tester — ToronFT™ ST Technical Specifications

Parameter	Specification
Model	ToronFT™ ST
Applicable Sprinkler Types	All types except dry sprinklers
Number of Specimens per Cycle	5
Test Box Geometry	Regular hexagonal prism (six-diamond cylindrical)
Test Box Material	Six B-baked resin plates (vinyl resin)
Test Box Dimensions (L×W)	305 mm × 254 mm
Tumbling Distance	3 mm

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