

FIRE COUPLING DROP TESTER



Fire Coupling Drop Tester — ToronFT™ FC-DT

ToronFT™ FC-DT is a specialized fire coupling drop tester designed to evaluate the impact resistance and structural integrity of fire couplings following controlled free-fall events. By subjecting fire coupling specimens to repeated drops from a precisely regulated height onto a reinforced concrete platform, the ToronFT™ FC-DT replicates real-world handling, deployment, and accidental drop scenarios that fire couplings must survive without functional degradation.

With an adjustable test height range of 1.2–2.0 m, a height control accuracy of 0.05 mm, and an electric clamping system that securely locks the specimen in any of three mounting orientations, the ToronFT™ FC-DT provides the precision, repeatability, and versatility required for fire coupling type approval testing and ongoing production sampling inspection at North American testing laboratories.

APPLICATIONS

Fire Coupling Drop Tester — ToronFT™ FC-DT Applications

- Drop impact resistance testing of fire coupling assemblies for type approval and product certification
- Sampling inspection of fire couplings during production quality assurance programs
- Post-drop damage assessment of buckle-type, card-type, and threaded fire coupling configurations
- Compliance testing of fire couplings against applicable international and North American standards
- Research and development validation of new fire coupling materials and geometric designs for improved drop resistance



FEATURES

Fire Coupling Drop Tester — ToronFT™ FC-DT Key Features

- Adjustable test height range of 1.2–2.0 m accommodates the full range of fire coupling drop test requirements
- Industry-leading height control accuracy of 0.05 mm ensures a precisely repeatable drop point across all five test cycles
- 10 cm reinforced concrete drop platform provides a standardized, durable impact surface consistent with real installation environments
- Electric clamping system provides positive, consistent specimen grip and clean, reliable release without manual intervention
- Three specimen installation configurations: internal buckle-type (claw down), card-type (axis horizontal), and threaded-type (axis horizontal)
- Five consecutive drops per specimen with post-drop damage inspection, following standardized test protocols
- Drop height set so the lowest point of the specimen is (1.5 ± 0.05) m above the platform base for regulatory compliance
- Robust vertical column construction provides stable, vibration-free specimen positioning throughout the test sequence

THEORY & METHOD

Theory and Method

The ToronFT™ FC-DT drop test is conducted by mounting the fire coupling specimen in one of three prescribed orientations using the electric clamping system: internal buckle-type fire coupling with the claw facing downward; card-type fire coupling with the axis of the coupling in a horizontal state; or threaded-type fire coupling with the axis of the coupling in a horizontal state. The sample is then raised to the test height using the adjustable column, set so that the lowest point of the specimen

is exactly (1.5 ± 0.05) m above the reinforced concrete base platform.

Once the specimen is stationary at the set drop height, the electric clamp releases and the coupling falls freely, impacting the 10 cm reinforced concrete platform below. Each specimen undergoes five consecutive drop cycles. After all five drops, the specimen is visually and functionally inspected for damage — cracks, deformation, or separation of components — that would constitute a test failure. The quantitative height-control accuracy of 0.05 mm ensures that all five drops are performed from a consistent, reproducible release point, a critical requirement for producing statistically valid and regulatory-admissible test results.

TECHNICAL SPECIFICATIONS

Fire Coupling Drop Tester — ToronFT™ FC-DT Technical Specifications

Parameter	Specification
Test Height Range	1.2 – 2.0 m (adjustable)
Test Height Control Accuracy	0.05 mm
Drop Height (lowest point of specimen to base)	1.5 ± 0.05 m
Drop Platform Material	10 cm (100 mm) reinforced concrete board
Number of Drops per Specimen	5 consecutive drops
Specimen Clamping System	Electric clamping (motorized release)
Specimen Installation Configurations	1. Internal buckle-type fire coupling — claw facing downward 2. Card-type fire coupling — axis of coupling in horizontal state 3. Threaded-type fire coupling — axis of coupling in horizontal state
Post-Test Inspection	Visual and functional damage assessment per applicable standard

Parameter	Specification
Applicable Specimen Type	Fire couplings (buckle-type, card-type, threaded-type)



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