

FIRE HYDRANT CABINET STIFFNESS TEST BENCH



Fire Hydrant Cabinet Stiffness Test Bench — ToronFT™ FHC

ToronFT™ FHC is a precision stiffness test bench purpose-built for evaluating the structural rigidity of fire hydrant cabinets — also known as fire hose reels or fire hose cabinets. Designed with simplicity and operational reliability as core principles, the FHC securely mounts the fire hydrant cabinet to the test bench to prevent any movement or shift during the detection process, ensuring test data that is accurate, traceable, and fully repeatable.

Unlike complex motorized test rigs, the ToronFT™ FHC derives its stiffness moment measurements through straightforward manual calculation following a defined loading procedure. This approach eliminates complex electronics susceptible to failure, allows non-specialist operators to conduct tests efficiently, and is fully compatible with installations across manufacturing quality-control departments, independent testing laboratories, and fire safety regulatory bodies in North America.

APPLICATIONS

Fire Hydrant Cabinet Stiffness Test Bench — ToronFT™ FHC Applications

- Stiffness testing of fire hose reel bolt-type fire hydrant cabinets (rated moment: 150 N·m)
- Stiffness evaluation of bracket-type bolt fire hydrant cabinets (rated moment: 40 N·m)
- Stiffness verification of hanging bolt-type fire hydrant cabinets (rated moment: 40 N·m)
- Conformance testing of a comprehensive range of standard fire hydrant cabinet dimensions used across commercial, industrial, and institutional buildings
- Quality control and type approval testing for fire hydrant cabinet manufacturers
- Third-party laboratory certification of fire protection equipment enclosures



FEATURES

Fire Hydrant Cabinet Stiffness Test Bench — ToronFT™ FHC Key Features

- Robust clamping system positively fixes the fire hydrant cabinet to the bench, preventing any movement or shift during testing
- Simple detection methodology requires no high-level technical expertise from test operators
- Reliable, failure-resistant design with minimal electronic components — testing is completed through re-hanging and removal sequences
- Stiffness moment derived via straightforward manual calculation, ensuring results are transparent and auditable
- Dial indicator deformation measurement: range 0–10 mm, resolution 0.01 mm for high sensitivity
- Covers all three cabinet mounting configurations: fire hose reel bolt type (150 N·m), bracket-type bolt (40 N·m), and hanging bolt type (40 N·m)
- Accommodates a comprehensive range of standard cabinet sizes (long side × short side × thickness in mm)
- Proven dimensional compatibility: 800×650×200, 800×650×240, 800×650×320, 1000×700×200, 1000×700×240, 1000×700×320, 1200×750×200, 1200×750×240, and 1200×750×320

THEORY & METHOD

Theory and Method

The stiffness test bench operates on a straightforward but rigorous fixed-load moment principle. The fire hydrant cabinet specimen is securely anchored to the FHC test bench using the prescribed mounting configuration for the cabinet type under test (bolt-type reel, bracket-type, or hanging bolt-type). Once fixed, a defined bending moment load — expressed in N·m — is applied to the cabinet body per the relevant test standard.

The resulting deformation at the loading point is measured with a dial indicator. The deformation reading, combined with the applied load and lever-arm distance, allows the stiffness moment to be calculated manually using standard structural formulas. The dial indicator provides measurement over the range 0–10 mm with a resolution of 0.01 mm, allowing detection of very small permanent deformations that indicate structural inadequacy. Because the bench fixes the specimen immovably throughout the test, all measured deflection is attributable solely to the cabinet's own structural response, not to bench compliance — a key requirement for accurate stiffness determination.

TECHNICAL SPECIFICATIONS

Fire Hydrant Cabinet Stiffness Test Bench — ToronFT™ FHC Technical Specifications

Parameter	Specification
Test Type — Fire Hose Reel Bolt Cabinet	Stiffness moment: 150 N·m
Test Type — Bracket-Type Bolt Cabinet	Stiffness moment: 40 N·m
Test Type — Hanging Bolt Cabinet	Stiffness moment: 40 N·m
Deformation Measurement Tool	Dial indicator
Deformation Measurement Range	0 - 10 mm
Deformation Measurement Resolution	0.01 mm
Cabinet Dimensions Supported (L×S×T, mm)	800×650×200, 800×650×240, 800×650×320, 1000×700×200, 1000×700×240, 1000×700×320, 1200×750×200, 1200×750×240, 1200×750×320
Fixation Method	Rigid bench clamping — no shift during detection

Parameter	Specification
Stiffness Calculation Method	Manual calculation from applied load and measured deformation



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