



FIRE PUMP HYDROSTATIC SEAL STRENGTH TESTER

Fire Pump Hydrostatic Seal Strength Tester — ToronFT™ FP-SH

The ToronFT™ FP-SH Fire Pump Hydrostatic Seal Strength Tester is a precision hydraulic testing instrument designed specifically for sealing performance verification and hydrostatic strength qualification of fire pumps that use clean water, foam fire extinguishing agent, or foam solution as the primary fire suppression medium. By applying controlled water pressure to the pump assembly across the 0.05–6 MPa working range and up to 10 MPa for high-pressure pump testing, the ToronFT™ FP-SH provides the reliable, repeatable hydraulic conditions required for standard-compliant sealing and strength certification.

The fire pump sealing and hydrostatic strength tester incorporates a recycled water system with an integrated filter device, a precision pressure stabilizing mechanism, and a high-precision pressure increasing rate controller — delivering the test consistency and pressure stability required by international fire pump qualification standards.

APPLICATIONS

Fire Pump Hydrostatic Seal Strength Tester — ToronFT™ FP-SH

Applications

- Fire pump manufacturers: sealing performance and hydrostatic strength qualification for production and certification
- Third-party certification and listing laboratories: sealing and pressure strength testing per NFPA 20, UL 448, and FM Approvals standards
- Quality assurance departments: production-line and incoming inspection sealing and strength verification
- Field service and commissioning: post-repair and post-installation hydrostatic strength verification of fire pump assemblies
- R&D departments: evaluation of new pump body materials, seal configurations, and assembly processes under hydrostatic loading



FEATURES

Fire Pump Hydrostatic Seal Strength Tester — ToronFT™ FP-SH Key Features

- Compatible with fire pumps using clean water, foam fire extinguishing agent, and foam solution — broad product coverage
- Test medium: recycled water with integrated filter device — reducing water consumption and maintaining test water cleanliness
- Working pressure range: 0.05–6 MPa — covering standard sealing test pressures for all common fire pump classes
- High-pressure pump range: 0–10 MPa — for elevated hydrostatic strength testing
- Controlled pressure increase rate: 5–10 MPa/min — preventing pressure shock loading during test pressurization
- Pressure stabilizing device: ± 0.05 MPa fluctuation at ≤ 3.0 MPa; ± 0.1 MPa fluctuation at > 3.0 MPa — precise, stable pressure hold throughout the test
- Compact, self-contained tester for efficient integration into production quality control and certification workflows
- Automated pressure control reducing operator intervention and improving test-to-test repeatability

THEORY & METHOD

Theory and Method

Sealing testing verifies that all pump seals, gaskets, and mechanical seal faces maintain leak-free integrity under the defined operating pressure range. The ToronFT™ FP-SH applies water pressure to the pump assembly at the specified test pressures and holds each pressure level while the pump body and all seal interfaces are inspected for leakage. Any visible

leakage at or below the rated test pressure constitutes a sealing failure.

Hydrostatic strength testing applies pressure beyond the pump's rated working pressure to verify that the pump casing and all pressure-containing components have adequate structural strength and will not fail under over-pressure conditions. The ToronFT™ FP-SH controls the pressure increase rate at 5–10 MPa/min to avoid shock loading during pressurization, while the pressure stabilizing device ensures that pressure fluctuation is held within ± 0.05 MPa at pressures up to 3.0 MPa and within ± 0.1 MPa above 3.0 MPa — providing the stable, precisely controlled pressure environment required for accurate, reproducible test results.

TECHNICAL SPECIFICATIONS

Fire Pump Hydrostatic Seal Strength Tester — ToronFT™ FP-SH Technical Specifications

Parameter	Specification
Model	ToronFT™ FP-SH
Compatible Fluids	Clean water, foam fire extinguishing agent, foam solution
Test Types	Sealing performance test, hydrostatic strength test
Test Medium	Water (recycled, with filter device)
Working Pressure Range	0.05 - 6 MPa
High-Pressure Pump Range	0 - 10 MPa
Pressure Increasing Rate	5 - 10 MPa/min
Pressure Fluctuation (≤ 3.0 MPa)	$\leq \pm 0.05$ MPa

Parameter	Specification
Pressure Fluctuation (> 3.0 MPa)	$\leq \pm 0.1 \text{ MPa}$



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