

GAS FIRE EXTINGUISHING SYSTEM COMPONENT OVERPRESSURE TESTER



Gas Fire Extinguishing System Component Overpressure Tester — ToronFT™ GFE-OP

ToronFT™ GFE-OP Gas Fire Extinguishing System Component Overpressure Tester is a high-pressure hydraulic testing instrument designed specifically for the overpressure qualification of gas fire extinguishing system components — including containers (pressure cylinders), container valves, pressure indicators, selector valves, one-way valves, and related assemblies. By applying hydraulic pressure well beyond the rated working pressure of these components, the ToronFT™ GFE-OP verifies that each assembly has adequate structural strength and pressure integrity to withstand the burst and proof pressure requirements of international gas fire suppression standards.

The gas fire extinguishing system component overpressure tester is also capable of functioning as a sealing performance test device and hydraulic strength test device for the same component types — providing multi-function qualification capability in a single platform. The ToronFT™ GFE-OP must be used in conjunction with the ToronFT™ HSC Hydraulic Strength Comprehensive tester, which serves as the high-pressure water supply source for all overpressure test operations.

For container (cylinder) testing, the instrument is rated to a test pressure of 75 MPa for steel seamless gas cylinders with an outer diameter of 273 mm and a height of 1700 mm. A safety-first design philosophy governs the test setup: all container overpressure tests are conducted in a below-grade pit (2 meters deep × 0.5 meters in diameter) to contain any potential cylinder failure event and protect laboratory personnel and equipment.

APPLICATIONS

Gas Fire Extinguishing System Component Overpressure Tester — ToronFT™ GFE-OP Applications

- Gas fire extinguishing system manufacturers: overpressure, sealing performance, and hydraulic strength qualification of cylinders, container valves, pressure indicators, selector valves, and one-way valves
- Third-party certification and listing laboratories: component overpressure and hydraulic strength testing per ISO 14520, NFPA 2001, and related international fire suppression standards
- Pressure vessel and gas cylinder manufacturers: proof pressure and burst pressure qualification for steel seamless gas cylinders used in fire suppression applications
- Quality assurance departments: production-line and incoming inspection overpressure verification for gas fire extinguishing system pressure-containing components
- R&D departments: evaluation of new cylinder designs, valve body materials, and sealing configurations under extreme overpressure conditions



FEATURES

Gas Fire Extinguishing System Component Overpressure Tester — ToronFT™ GFE-OP Key Features

- Multi-function qualification platform: overpressure testing, sealing performance testing, and hydraulic strength testing of gas fire extinguishing system components — all in one instrument
- Applicable components: containers (pressure cylinders), container valves, pressure indicators, selector valves, and one-way valves — covering the full range of gas fire suppression pressure-containing components
- Container test specification: steel seamless gas cylinders, test pressure 75 MPa, outer diameter 273 mm, height 1700 mm
- Safety pit design: all container overpressure tests conducted in a below-grade pit (2 m deep × 0.5 m diameter) — providing critical containment protection in the event of cylinder failure
- Integrated sample lifting devices: facilitating safe handling and precise positioning of heavy cylinders and large valve assemblies into test fixtures
- Pipeline bearing capacity: ≥ 100 MPa — rated well above the 75 MPa cylinder test pressure for safe, reliable high-pressure water transmission
- Drainage system: 370 W stainless steel submersible pump — efficient post-test water removal from the test pit and test area
- Three different test specifications can be conducted simultaneously — maximizing laboratory throughput for multi-component qualification programs
- Test room space: 950 mm diameter × 1800 mm height — providing the working clearance required for safe component positioning and connection
- Must be used in conjunction with the ToronFT™ HSC Hydraulic Strength Comprehensive tester as the high-pressure water supply source

THEORY & METHOD

Theory and Method

Overpressure testing subjects gas fire extinguishing system components to hydraulic water pressure at a level significantly exceeding the maximum working pressure, verifying that the component's pressure-containing walls, seals, and joints have sufficient structural strength to withstand burst or proof pressure conditions without failure. Water is used as the test medium in place of pressurized gas to eliminate the stored energy hazard that would exist if a high-pressure gas were used — any sudden failure during a hydraulic test results in a rapid, controlled pressure release rather than an explosive energy release.

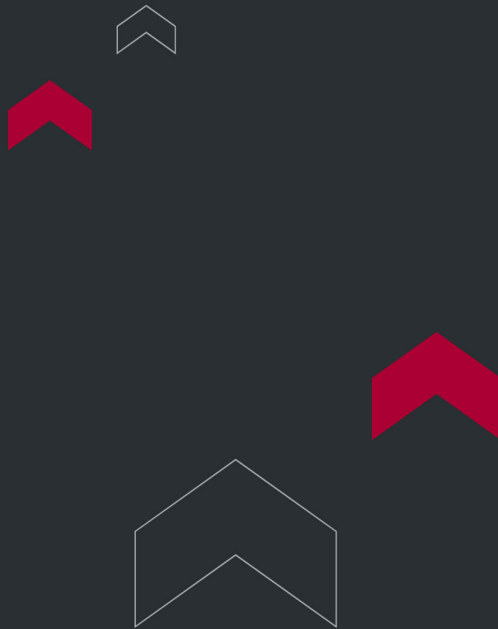
For container (steel seamless gas cylinder) testing, the test pressure is 75 MPa — applied to cylinders with an outer diameter of 273 mm and a height of 1700 mm. Because of the size, mass, and energy stored in a fully pressurized large-diameter cylinder, all container overpressure tests are performed with the cylinder positioned in a below-grade safety pit (2 meters deep × 0.5 meters in diameter). This pit configuration provides a physical barrier that confines any potential failure event to below the working floor level, protecting all personnel and equipment in the laboratory area above.

The high-pressure water supply is delivered from the ToronFT™ HSC (ZY6370) Hydraulic Strength Comprehensive tester. The ToronFT™ GFE-OP pipeline system is rated to a bearing capacity of ≥ 100 MPa, ensuring that the connecting pipework can safely transmit the maximum test pressure without failure. The integrated sample lifting devices facilitate the safe handling and positioning of heavy cylinders and large valve assemblies into and out of the test fixtures and pit.

TECHNICAL SPECIFICATIONS

Gas Fire Extinguishing System Component Overpressure Tester — ToronFT™ GFE-OP Technical Specifications

Parameter	Specification
Model	ToronFT™ GFE-OP
Applicable Components	Containers, container valves, pressure indicators, selector valves, one-way valves
Test Types	Overpressure test, sealing performance test, hydraulic strength test
Container Test Pressure	75 MPa
Container Specification (steel seamless)	Outer diameter 273 mm, height 1700 mm
Safety Pit Dimensions	Depth 2 m × Diameter 0.5 m (below-grade; customer constructed)
Pipeline Bearing Capacity	≥ 100 MPa
Sample Lifting Devices	One set (included)
Drainage System	370 W stainless steel submersible pump
Simultaneous Test Specifications	3 (three different specifications at the same time)
Test Room Space	Diameter 950 mm × Height 1800 mm
Required Companion Instrument	ToronFT™ HSC ZY6370 (hydraulic pressure source)



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