



TORONTECH



GAS REGULATOR IMPACT TESTER

Gas Regulator Impact Tester - ToronFT™ GRI

ToronFT™ GRI Gas Regulator Impact Tester is a precision mechanical test instrument designed for impact strength testing of pressure regulator air outlets. This instrument delivers controlled, repeatable impact energy to the outlet of LPG pressure regulators to evaluate their resistance to mechanical shock and impact damage — a critical safety parameter for regulators installed in locations where physical impacts from accidental knocks, drops, or installation loads may occur.

The ToronFT™ GRI provides three selectable impact energy levels (3.0 N.m, 5.0 N.m, and 8.0 N.m), a wide height adjustment range (0.5–1.5 m), and a high-speed AC motor-driven lifting mechanism, enabling efficient and reproducible impact test sequences. The system complies with UL 144 and EN 12864, making it suitable for certification testing in both North American and European regulatory frameworks.

APPLICATIONS

Gas Regulator Impact Tester - ToronFT™ GRI Applications

The ToronFT™ GRI is designed for impact test and mechanical shock evaluation of voltage regulators and LPG pressure regulators in the following applications:

- Impact strength testing of LPG pressure regulator air outlets per UL 144 and EN 12864 certification requirements
- Design validation of new LPG voltage regulator body and outlet fitting designs for impact resistance
- Quality assurance testing to verify impact resistance of pressure regulator production batches
- Type testing and certification of LPG pressure regulators for North American and European markets
- Research and development impact testing of new materials and designs for LPG pressure regulator bodies
- Failure mode investigation of LPG pressure regulators exposed to mechanical impact in field service



Standards

The ToronFT™ GRI is designed to comply with the following international standards for LPG pressure regulator and voltage regulator impact testing:

- UL 144: Standard for LP-Gas Regulators (Underwriters Laboratories)
- EN 12864: Domestic, non-domestic, and industrial low-pressure regulators and associated pressure control equipment for butane, propane, and their mixtures
- ISO 4892-1: General guidance for exposure apparatus (referenced for impact energy calibration methodology)

FEATURES

Gas Regulator Impact Tester - ToronFT™ GRI Key Features

- Three selectable steel hammer impact energy levels — 3.0 N.m, 5.0 N.m, and 8.0 N.m — covering the full range of impact test requirements for LPG voltage regulator air outlet certification
- Wide height adjustment range of 0.5 m to 1.5 m between the bottom of the steel hammer and the top of the regulator air outlet, accommodating varied regulator sizes and impact test protocols
- AC motor drive lifting mechanism ensures consistent, controlled hammer raising at 500 mm/min rising speed — eliminating operator variability and ensuring test-to-test repeatability
- Limit switch impact height positioning provides precise and repeatable hammer drop heights, directly controlling impact energy delivered to the voltage regulator outlet
- Scale ruler height display with 1.0 mm resolution allows operators to precisely verify and record hammer drop height for test documentation and traceability
- Compact overall dimensions of L450 mm x W280 mm x H1650 mm and a weight of approximately 80 kg make the ToronFT™ GRI easily positioned within standard test laboratory footprints

- Working power supply of AC220V / 50Hz at 120W — low power consumption with no compressed air or specialist utilities required
- Complies with UL 144 and EN 12864, ensuring impact test results are accepted by North American and European certification and safety testing bodies

THEORY & METHOD

Theory and Method

Impact strength testing of voltage regulator air outlets evaluates the ability of the outlet fitting and regulator body to withstand a defined kinetic energy impact without fracture, cracking, or failure that would compromise the regulator's sealing integrity or safe operation. The impact test apparatus uses a heavy steel hammer dropped from a calibrated height to deliver a controlled kinetic energy impact to the outlet.

In the ToronFT™ GRI, the steel hammer is raised by an AC motor drive to the specified height — adjustable between 0.5 m and 1.5 m, as selected by the operator. The hammer is then released and falls freely onto the regulator air outlet at the specified impact energy level. Impact height positioning is achieved by a limit switch for precise repeatability. After the impact, the regulator is inspected for damage and retested for pressure integrity as required by the applicable standard. The rising speed of 500 mm/min ensures efficient test cycle throughput.

TECHNICAL SPECIFICATIONS

Gas Regulator Impact Tester - ToronFT™ GRI Technical Specifications

Parameter	Specification
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Model	ToronFT™ GRI
Product Name	Gas Regulator Impact Tester — ToronFT™ GRI
Height Adjustment Range	0.5 m to 1.5 m (hammer bottom to regulator outlet top)
Impact Energy Levels	3.0 N.m; 5.0 N.m; 8.0 N.m
Rising Speed	500 mm/min
Height Positioning	Limit switch
Lifting Mechanism	AC motor drive
Height Display	Scale ruler, resolution 1.0 mm
Overall Dimensions (L x W x H)	450 mm x 280 mm x 1650 mm
Weight	Approx. 80 kg
Working Voltage	AC220V / 50Hz; 120 W (110V is also available)
Compliance Standards	UL 144; EN 12864



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