

UL 1598 Rain Test Apparatus

Wet Location and Damp Location Luminaire Water Spray Test Apparatus



Standards: UL 1598 (supports UL 498, UL 484, UL 1993)

Manufacturer: KingPo Technology Development Limited www.dgkingpo.com Tel: +86-769-81627526

1. Product Overview

The KingPo UL 1598 Rain Test Apparatus is designed for water spray testing on luminaires intended for wet locations and damp locations per UL 1598. It verifies that water does not enter the ballast compartment or lampholder of self-ballasted lamps and other luminaires.

This apparatus is suitable for lighting manufacturers, testing laboratories, certification bodies, and quality control departments to evaluate the sealing performance of luminaires under simulated wet environment conditions, ensuring electrical safety for products used in outdoor, damp, or wet locations.

2. Key Advantages

- **Designed for UL 1598 Wet and Damp Location Luminaire Testing**

Engineering: Equipped with 4 precision spray nozzles compliant with UL60507-38.2, delivering controlled water spray (10 L/min $\pm$ 5%, 50–150 kPa) to simulate wet environment conditions.

Benefit: Enables accurate verification that water does not enter critical compartments (ballast or lampholder), supporting product safety and compliance for wet/damp location luminaires.

- **Adjustable Spray Structure for Flexible Testing**

Engineering: Spray head height adjustable from 0 to 1400 mm to accommodate various luminaire sizes and configurations.

Benefit: Provides flexibility to test a wide range of luminaire designs without requiring multiple test setups.

- **Stable Water Supply and Control System**

Engineering: Includes booster pump, flow meter, solenoid valve, and filter to ensure stable pressure, accurate flow measurement, and clean water supply.

Benefit: Delivers consistent and repeatable test conditions with minimal variation, improving test reliability and reducing rework.

- **Mobile and User-Friendly Design**

Engineering: Industrial aluminum profile frame with lockable universal wheels for easy mobility and stability, plus an independent controller for convenient operation.

Benefit: Enhances laboratory workflow efficiency and allows easy repositioning within the test facility while maintaining stable test conditions.

3. Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Remark / Notes
Applicable Standard	UL 1598	Supports UL 498, UL 484, UL 1993
Number of Spray Nozzles	4	Compliant with UL60507-38.2
Water Flow Rate	10 L/min $\pm$ 5%	Consistent spray volume
Water Pressure	50–150 kPa	Suitable for wet location testing
Adjustable Spray Height	0–1400 mm	Accommodates various luminaire sizes
Frame Material	Industrial aluminum profile	Lightweight yet stable with lockable wheels
Water Supply System	Booster pump + flow meter + solenoid valve + filter	Stable pressure, accurate flow, clean water
Control System	Independent controller	Convenient and stable operation

4. Testing Principle

The apparatus positions the luminaire under a controlled water spray from UL-compliant nozzles for a specified duration. Per UL 1598, water must not enter the ballast compartment or lampholder. The test evaluates the luminaire's sealing performance by simulating water spray in wet environments, ensuring electrical safety for self-ballasted lamps, lamp adapters, and other luminaires intended for wet or damp locations.

5. Best Practices

1. Keep spray nozzles clean and free from blockages to maintain consistent spray patterns.
2. Verify stable water pressure and flow rate within the specified tolerances before testing.
3. Adjust spray height appropriately for the specific luminaire size and configuration.
4. Ensure proper positioning of the luminaire to expose all critical areas to the spray.
5. Regularly inspect and maintain the water supply system (pump, filter, solenoid valve) for reliable performance.

6. Typical Applications

- Lighting manufacturers — Wet and damp location luminaire development and quality control
- Testing laboratories and certification bodies — UL 1598 compliance testing
- Quality control departments — Routine verification of luminaire sealing performance
- Research institutions — Study of water ingress behavior in lighting products
- Product certification support — Ensuring electrical safety for outdoor and wet-location luminaires

7. Supply Options & Support

Technical assistance is available for equipment setup, test method application, and UL 1598 compliance guidance.

8. Compliance & Manufacturer

This apparatus is designed for UL 1598 wet location and damp location luminaire water spray testing. It supports related standards including UL 498, UL 484, and UL 1993.

Manufactured under ISO 9001, ISO 14001, and ISO 45001 certified management systems. CE, RoHS, PSE, and SGS documentation can be provided upon request according to the applicable equipment configuration.

KingPo Technology Development Limited

Factory Address: No.9 University Road, Songshan Lake,
Dongguan City, Guangdong Province 523770, China

Tel: +86-769-81627526 | Email: sales@kingpo.hk | Website: www.dgkingpo.com

Precision Metrology • Regulatory Compliance • Engineering Reliability