IEC 62368-1 Water Spray Test Apparatus

Annex Y.5.3 Water Spray Test Apparatus for Outdoor Enclosures

Standards: IEC 62368-1 Annex Y.5.3
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1. Product Overview

The KingPo IEC 62368-1 Water Spray Test Apparatus is a specialized water spray testing system designed for evaluating the water ingress protection of outdoor enclosures according to IEC 62368-1 Annex Y.5.3. It performs the specific water spray test method required for audio, video, information technology, and communication technology equipment installed outdoors.

This apparatus is suitable for manufacturers, testing laboratories, certification bodies, and research institutions to assess water ingress on vertical surfaces, top surfaces, and potential water bounce-back from low openings near ground level. It supports product development, design validation, and compliance verification for outdoor enclosures of audio, video, IT, and communication technology equipment.

2. Key Advantages

- **Designed for IEC 62368-1 Annex Y.5.3 Outdoor Enclosure Testing**
  Engineering: Three spray heads mounted per Figure Y.3, delivering controlled water spray at 34.5 kPa for 1 hour to simulate outdoor rain exposure on vertical surfaces, top surfaces, and low openings near ground level.
  Benefit: Enables accurate evaluation of water ingress protection for outdoor audio, video, IT, and communication technology enclosures in accordance with the latest safety standard requirements.
- **Comprehensive Surface Coverage (Vertical, Top, and Ground Deflection)**
  Engineering: Test configuration supports evaluation of vertical surfaces, top surfaces, and ground deflection simulation for low openings near ground level as specified in Annex Y.5.3.
  Benefit: Provides complete assessment of water exposure scenarios that outdoor enclosures may encounter, improving product reliability and safety in real-world conditions.
- **Stable Water Pressure Control**
  Engineering: Maintains stable water pressure of 34.5 kPa at each of the three spray heads throughout the 1-hour test duration.
  Benefit: Ensures consistent and repeatable test conditions, improving the reliability and traceability of water ingress evaluation results.
- **Mobile and Convenient Laboratory Design**
  Engineering: Industrial aluminum profile frame with lockable universal wheels for easy positioning and stability in laboratory environments.
  Benefit: Enhances workflow efficiency and allows convenient repositioning of the test apparatus within the laboratory or test facility.

3. Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Remark / Notes
Applicable Standard	IEC 62368-1 Annex Y.5.3	Water spray test for outdoor enclosures
Number of Spray Heads	3	Mounted per Figure Y.3
Water Pressure	34.5 kPa at each spray head	Maintained throughout the 1-hour test
Test Duration	1 hour	As specified in Annex Y.5.3
Water Type	Fresh water	Recommended for consistent test results
Test Configuration	Vertical surfaces, top surfaces, ground deflection for low openings	Covers key water exposure scenarios
Frame Material	Industrial aluminum profile	Stable and lightweight structure
Mobility	Lockable universal wheels	Convenient for laboratory use

4. Testing Principle

The test involves positioning the outdoor enclosure in the focal area of the three spray heads and exposing it to

a controlled water spray for 1 hour. Water is sprayed onto vertical surfaces at 34.5 kPa, with additional evaluation for top surfaces and low openings near ground level to simulate rain bounce-back.

This method evaluates whether water can penetrate the enclosure and reach internal components, ensuring the safety and waterproof integrity of equipment intended for outdoor installation in audio, video, information technology, and communication technology applications.

5. Best Practices

1. Ensure spray heads are clean and free from blockage to maintain consistent water spray patterns and pressure.
2. Verify water pressure remains stable at 34.5 kPa at each spray head throughout the 1-hour test.
3. Properly position the test sample in the focal area as specified in IEC 62368-1 Annex Y.5.3.
4. Conduct additional tests for top surfaces and ground deflection near low openings when required by the test plan.
5. Regularly inspect and maintain the water supply system for stable performance.

6. Typical Applications

- Audio, video, and IT equipment manufacturers — Outdoor enclosure water spray testing
- Testing laboratories — IEC 62368-1 Annex Y.5.3 compliance testing
- Certification bodies — Safety evaluation of outdoor communication and IT enclosures
- Electrical enclosure manufacturers — Product development and water ingress studies
- Research institutions — Study of water ingress behavior in outdoor equipment

7. Supply Options & Support

Technical support is available for equipment operation and proper application of the IEC 62368-1 Annex Y.5.3 test method.

8. Compliance & Manufacturer

This apparatus is designed to perform tests in accordance with IEC 62368-1 Annex Y.5.3 for water spray testing of outdoor enclosures used with audio, video, information technology, and communication technology equipment.

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.

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