IEC 60529 IPX1 Vertical Drip Test Chamber

Professional Technical Datasheet

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Standard: IEC 60529 IPX1 (Vertical Dripping Water)
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1. Product Overview

The KingPo IPX1 Vertical Drip Test Chamber is a professional testing system designed to evaluate the protection of enclosures against vertically falling water drops in accordance with IEC 60529 IPX1. It provides reliable and repeatable testing for electrical products, household appliances, lighting fixtures, and industrial enclosures under simulated light rain or condensation conditions.

This chamber is essential for manufacturers and laboratories to verify that products can withstand light rain or condensation without water ingress that could affect safe operation. It helps reduce warranty claims, supports compliance certification, and ensures product reliability in real-world environments.

2. Key Advantages

● Precision Drip Nozzle System

Φ0.4 mm precision needle nozzles arranged in a uniform 20 mm grid with a controlled drip rate of 1 mm/min (±0.5 mm/min). Benefit: Ensures highly uniform and repeatable droplet distribution exactly as required by IEC 60529 IPX1.

● Motorized Drip Box Adjustment

Smooth motorized height adjustment system for precise and effortless positioning of the drip box at the required 200 mm height. Benefit: Greatly reduces operator workload and improves test consistency and safety.

● Rotating Turntable for Uniform Exposure

Φ600 mm turntable rotating at a constant 1 r/min with a maximum load capacity of 150 kg. Benefit: Guarantees that all areas of the specimen receive equal exposure to falling droplets throughout the test.

● Advanced PLC Control System

Mitsubishi PLC with 7-inch color touchscreen for intuitive parameter setting, real-time monitoring, and data logging. Benefit: User-friendly operation suitable for both laboratory and production quality control environments.

● Integrated Water Filtration System

Built-in clean water filtration prevents nozzle clogging and ensures long-term stable operation. Benefit: Minimizes maintenance and guarantees consistent test conditions over time.

● Robust SUS304 Stainless Steel Construction

High-quality SUS304 stainless steel chamber for excellent corrosion resistance and long service life. Benefit: Reliable equipment suitable for continuous laboratory use with minimal maintenance.

3. Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Test Condition / Method
Drip Rate	1 mm/min (±0.5 mm/min)	Volumetric measurement per IEC 60529
Drip Height	200 mm (adjustable)	Above highest point of specimen
Drip Hole Diameter	Φ0.4 mm	Precision needle nozzles
Hole Grid Spacing	20 mm × 20 mm	Uniform distribution
Turntable Speed	1 r/min	Constant rotation for uniform exposure

Test Duration	10 minutes	Standard IEC 60529 IPX1 cycle

3.2 Mechanical Structure

Parameter	Specification	Notes
Chamber Material	SUS304 Stainless Steel	Excellent corrosion resistance
Drip Area	1000 × 600 mm (customizable)	Effective testing area
Turntable Diameter	Φ600 mm (customizable)	Rotating at 1 r/min
Turntable Load Capacity	Up to 150 kg	Suitable for various products
Drip Box Adjustment	Motorized screw-driven system	Smooth and precise height control
Water Filtration	Integrated clean water filtration	Prevents nozzle clogging

3.3 Control & Electrical System

Parameter	Specification	Notes
Control System	PLC + 7-inch color touchscreen	Intuitive operation and monitoring
Power Supply	AC 220V, 50/60 Hz	Standard laboratory power
Water Supply	Clean filtered water	Recommended for best results
Test Duration Control	PLC timer (standard 10 min)	Fully automatic cycle

All specifications are subject to continuous improvement. KingPo reserves the right to modify technical details without prior notice.

4. Test Procedure (IEC 60529 IPX1)

1. Place the test specimen at the center of the turntable and secure it properly.
2. Adjust the drip box height so that the nozzles are approximately 200 mm above the highest point of the specimen.
3. Set the drip rate to 1 mm/min (±0.5 mm/min) and confirm uniform droplet distribution.
4. Start the automatic 10-minute test cycle. The turntable rotates continuously at 1 r/min.
5. After the test, inspect the specimen for water ingress. The product passes if no water has entered in a quantity that could interfere with safe operation or create a safety hazard.

Fully compliant with IEC 60529 IPX1 vertical dripping water test requirements.

5. Typical Applications

- Household Appliances — Enclosures, control panels, and external components
- Lighting & Luminaires — Indoor and outdoor lighting products (IPX1 compliance)
- Electrical Cabinets & Enclosures — Industrial and commercial electrical equipment
- Third-Party Laboratories — IEC 60529 IPX1 formal compliance and type testing
- R&D and Quality Control — New product development and routine batch inspection

6. Optional Modules & Models

Optional Upgrades:
- Larger/custom turntable diameters
- Extended drip area sizes
- Integration with other IP testing equipment (IPX2 support available)
- ISO/IEC 17025 accredited calibration report

Standard Model: KP-IPX1 (Base configuration with Φ600 mm turntable, motorized drip box, PLC control, and factory calibration certificate)

7. Compliance & Manufacturer

This equipment is engineered and manufactured in strict accordance with IEC 60529 for IPX1 vertical dripping water testing. Each unit is delivered with a comprehensive traceable factory calibration certificate. ISO/IEC 17025 accredited third-party calibration is available upon request.

Manufactured under ISO 9001 / ISO 14001 / ISO 45001 quality management systems.

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