UV Test Chambers

ISO 4892-3 / ASTM D4329 Accelerated Weathering Tester

Professional Technical Datasheet

Standards: ISO 4892-3 • ASTM D4329 • ASTM D4587 • SAE J2020

Manufacturer: KingPo Test Equipment Co., Ltd. | www.dgkingpo.com

Product Overview

The KingPo UV Test Chambers are professional climatic chamber laboratory UV aging resistance testing equipment designed to accurately simulate natural sunlight UV radiation, rain, and dew conditions for accelerated aging testing of coatings, plastics, paints, resins, printing inks, metals, electronics, and other materials.

These chambers help manufacturers predict product lifespan, optimize formulations, and validate UV resistance performance under controlled, repeatable conditions. Fully compliant with international standards including ISO 4892-3, ASTM D4329, ASTM D4587, and SAE J2020, the system delivers reliable data trusted by coating manufacturers, automotive suppliers, and accredited laboratories worldwide.

Key Advantages

● High-Precision UV Irradiance Control

Engineering: 8 imported high-quality fluorescent UV lamps with electronic-eye irradiance control system for real-time monitoring and automatic adjustment.

Benefit: Maintains constant UV intensity throughout the test, ensuring highly repeatable and standards-compliant results with minimal variation.

● Precise Temperature & Humidity Control

Engineering: PID-controlled temperature range RT + 10 °C to 70 °C (±3 °C) and humidity 45–90 % R.H. with integrated condensation and water spray systems.

Benefit: Accurately replicates real-world outdoor UV, rain, and dew cycles for reliable prediction of material aging behavior.

● Large Specimen Capacity & Uniform Exposure

Engineering: Standard specimen holder accommodates 48 samples (75 × 150 mm) at a fixed 55 mm distance from the UV lamps.

Benefit: Enables high-throughput batch testing with uniform UV exposure across all specimens for consistent, comparable results.

● Advanced Color LCD Touchscreen Controller

Engineering: Intuitive color LCD touchscreen with real-time monitoring, programmable test cycles, data logging, and irradiance feedback.

Benefit: Simplifies operation, reduces setup time, and provides complete traceable test records for quality audits and R&D documentation.

● Robust Construction with Excellent Thermal Insulation

Engineering: Heavy-duty chamber construction with superior thermal insulation and low-noise operation for stable long-term testing.

Benefit: Delivers reliable performance over extended test periods with minimal energy consumption and quiet laboratory operation.

● Multi-Standard Compliance & Long Lamp Life

Engineering: Selectable UV-A (320–400 nm) or UV-B (280–315 nm) lamps with 1600-hour rated service life and full compliance with ISO 4892-3, ASTM D4329, ASTM D4587, and SAE J2020.

Benefit: One chamber supports multiple international test standards, maximizing flexibility and return on investment for global market compliance.

Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Test Condition / Method
Temperature Range	RT + 10 °C to 70 °C (±3 °C)	High-precision PID control
Humidity Range	45 % to 90 % R.H.	With condensation & water spray
UV Wavelength	UV-A (320–400 nm) or UV-B (280–315 nm)	Selectable per test standard
Lamp Quantity	8 imported fluorescent UV lamps	American high-quality lamps
Lamp Service Life	1600 hours (rated)	Continuous operation
Specimen Capacity	48 pcs (75 × 150 mm)	Standard holder for batch testing
Sample-to-Lamp Distance	55 mm	Optimal uniform UV exposure

3.2 Mechanical & Chamber Construction

Parameter	Specification	Notes
Internal Dimensions (W×D×H)	1170 × 450 × 500 mm	Effective test volume
External Dimensions (W×D×H)	1330 × 550 × 1480 mm	Compact laboratory footprint
Specimen Holder	48-position standard holder	75 × 150 mm samples
Water Spray System	Integrated condensation + spray	Simulates outdoor rain/dew
Construction	Heavy-duty with thermal insulation	Low noise, long-term stability

3.3 Electrical & Control System

Parameter	Specification	Notes
Control System	Color LCD touchscreen + PID	Real-time monitoring & data logging
Irradiance Control	Electronic-eye feedback system	Automatic real-time adjustment
Power Supply	AC 220 V / 50 Hz, 5 kW	Single-phase laboratory power
Safety & Monitoring	Over-temperature, lamp failure, door interlock	Comprehensive protection system

Test Procedure (ISO 4892-3 / ASTM D4329)

Mount up to 48 standard specimens (75 × 150 mm) securely on the specimen holder at the specified 55 mm distance from the UV lamps.

Select the appropriate UV lamp type (UV-A or UV-B) according to the target test standard (ISO 4892-3, ASTM D4329, ASTM D4587, or SAE J2020).

Program the test cycle on the color LCD touchscreen controller, including temperature, humidity, condensation, water spray intervals, and test duration.

Activate the chamber; the electronic-eye irradiance control system automatically monitors and maintains constant UV intensity throughout the exposure period.

The system executes the programmed cycles of UV exposure, condensation, and water spray to simulate natural outdoor weathering conditions.

Upon test completion, remove specimens and evaluate for changes in color, gloss, cracking, chalking, or mechanical properties as required by the applicable standard.

Fully compliant with ISO 4892-3, ASTM D4329, ASTM D4587, and SAE J2020 accelerated UV weathering test requirements.

Typical Applications

- Coatings, Paints, and Resins — UV aging resistance testing per ASTM D4587 and ISO 4892-3.
- Plastics and Rubber — Weathering performance evaluation per ASTM D4329 and GB/T 16422.3.
- Printing Inks and Packaging — Discoloration, gloss loss, and fading resistance testing.
- Automotive Exterior Materials — Simulated sunlight and rain exposure for components and finishes.
- Certification Laboratories — Compliance verification for ISO 4892-3, ASTM D4329, and SAE J2020.
- Product Development & Quality Control — Predict lifespan, optimize formulations, and perform batch verification of UV stability.

Optional Modules & Models

Optional Upgrades

- Selectable UV-A (320–400 nm) or UV-B (280–315 nm) lamp configurations.
- ISO/IEC 17025 accredited calibration certificates (additional cost).
- Customized specimen holders or increased sample capacity.
- Advanced data logging, remote monitoring, and automatic report generation.
- Integration with other environmental test systems upon request.

Standard Models

Model Code	Description	Standard Configuration

KP-UV-1170	Standard UV Test Chamber	8 UV lamps + touchscreen + condensation/spray + 48-specimen holder + factory calibration
KP-UV-CUST	Custom UV Aging System	Custom wavelength, capacity, or integration with additional environmental functions

Compliance & Manufacturer

These UV Test Chambers are strictly designed and manufactured in accordance with ISO 4892-3, ASTM D4329, ASTM D4587, ASTM D5208, GB/T 14552, GB/T 16422.3, GB/T 16585, and SAE J2020 for accelerated UV weathering and aging resistance testing.

Each unit includes factory calibration documentation. ISO/IEC 17025 accredited third-party calibration is available upon request. Regular verification of temperature, humidity, and irradiance is recommended to maintain traceability.

KingPo Test Equipment Co., Ltd.

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