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Mechatronics Inc

# Global Quality.
# Sustainable Innovation.







rochmechatronics.com


# ROCH MECHATRONICS INC

At ROCH Mechatronics, we understand that product durability, material reliability, and long-term performance are critical requirements across modern industries. To address these challenges, we offer advanced Weathering Simulators designed to accurately reproduce environmental conditions such as sunlight, UV radiation, temperature fluctuations, humidity, and rainfall. These systems enable manufacturers, researchers, and quality assurance laboratories to evaluate the aging characteristics and weather resis tance of materials within a controlled and accelerated testing environment.

Built with precision engineering and advanced control technology, ROCH Weathering Simulators help organizations predict product lifespan, improve material performance, and ensure compliance with international quality standards. The equipment provides reliable and repeatable test conditions for plastics, polymers, paints, coatings, textiles, automotive components, construction materials, and various industrial products exposed to outdoor environments.

Guided by our vision of “Developing Sustainable Future Technologies” and powered by a team committed to “Working Beyond Horizon,” we continuously innovate to deliver testing solutions that support research excellence, product development, and quality improvement. Our Weathering Simulators are trusted by research institutions, testing laboratories, universities, automotive industries, chemical industries, and manufacturing organizations worldwide, helping them accelerate product validation and enhance long-term reliability under real-world environmental conditions.

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# AWARDS

Quality and reliability are at the core of every Weathering Simulator manufactured by ROCH Mechatronics. Designed for accurate and repeatable environmental testing, our systems are built to meet international quality and safety standards.

## Certifications & Compliance

- **ISO 9001:2015** Certified Quality Management System
- **CE Certified** for Safety and Compliance
- **GMP-Compliant** Manufacturing Practices
- Adherence to International Weathering and Environmental Testing Standards
- **MSME Registered** Manufacturing Enterprise

## Awards & Recognition

- Innovation in Environmental Testing Solutions
- Trusted Supplier of Advanced Testing Chambers
- Excellence in Scientific Equipment Manufacturing and Export
- Emerging Leader in Durability Testing Technologies

Through advanced engineering and strict quality control, ROCH Mechatronics delivers reliable Weathering Simulators for product durability testing, research, and quality assurance applications worldwide.

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# WEATHERING SIMULATOR

Make: **Roch Mechatronics Inc**

Model No.: **RMI-WS-60**

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# WEATHERING SIMULATOR

The Weathering Simulator from Roch Mechatronics Inc. is a state-of-the-art accelerated weathering test system designed to evaluate the long-term durability and performance of materials under simulated environmental conditions. Utilizing advanced Xenon Arc lamp technology, the chamber accurately reproduces the effects of sunlight, temperature, humidity, and moisture exposure to assess material degradation, colour fastness, ageing, and stability. The system features precise environmental control, programmable test profiles, uniform specimen ex posure, and real-time monitoring through an intuitive touch-screen interface. Suitable for textiles, coatings, plastics, automotive components, geotextiles, and research applications, the RMI-WS-60 enables manufacturers and laboratories to predict product lifespan, improve quality, and ensure compliance with international testing standards

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# PRODUCT APPLICATIONS

- Textile & Fabric Testing
- Paints & Coatings Evaluation
- Automotive Material Testing
- Plastics & Polymer Ageing Studies
- Geotextile and Outdoor Product Testing
- Research & Development Laboratories
- Quality Control and Certification Labs

# KEY FEATURES

- Advanced Xenon Arc Lamp Technology for realistic sunlight simulation
- Precise Control of Temperature, Humidity, and Irradiance
- Accelerated Weathering & Ageing Testing for rapid durability assessment
- Uniform Specimen Exposure with optimized rotating rack system
- Large Touch-Screen Interface for easy operation and monitoring
- Programmable Test Profiles with customizable testing cycles
- Real-Time Data Logging and Graphical Trend Display
- Ethernet Connectivity for remote monitoring and data transfer
- Automatic Irradiance Control for consistent testing conditions
- High-Capacity Specimen Accommodation for multiple samples

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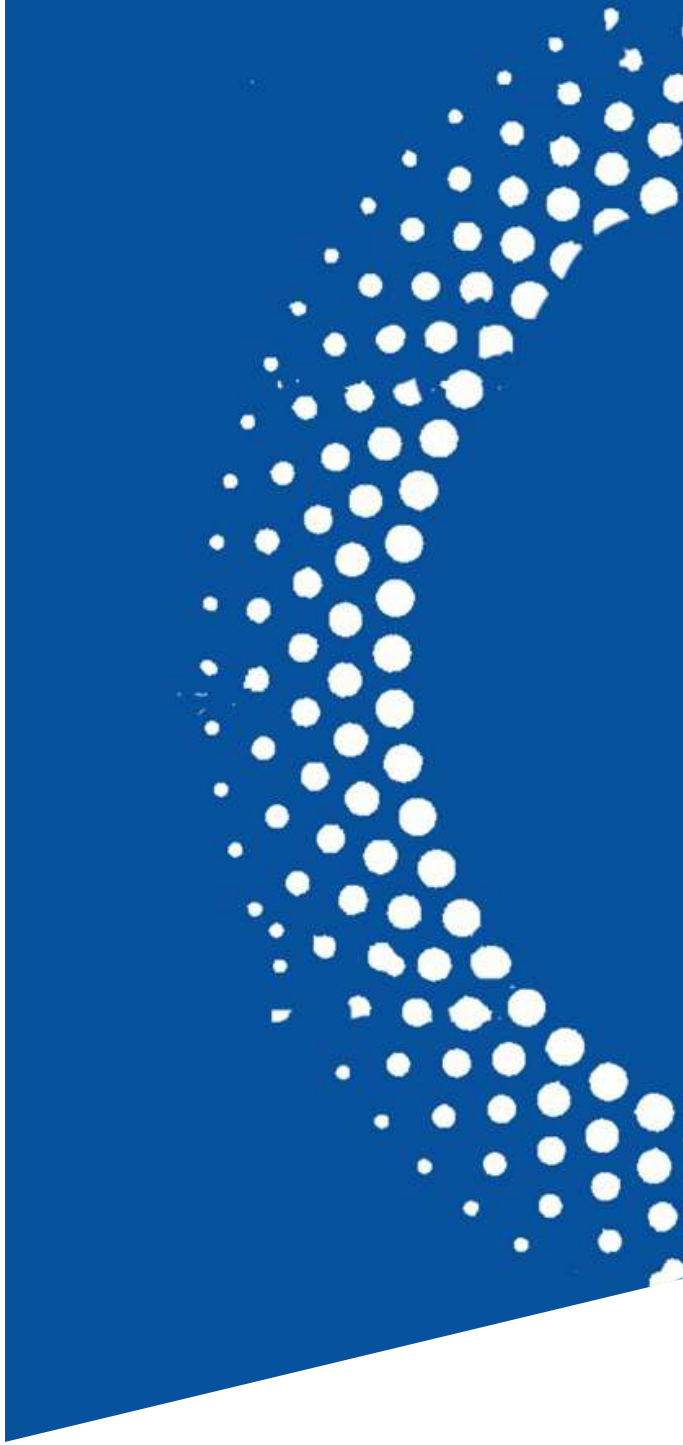
# TEMPERATURE RANGE

The Weathering Simulator is designed to provide precise environmental control for accelerated weathering and ageing studies. The chamber temperature can typically be controlled from Ambient +10°C to +65°C, while the Black Standard Temperature (BST) can be maintained within a range of 40°C to 100°C, depending on the selected test conditions. Advanced PID control ensures excellent temperature stability and uniformity throughout the testing cycle, enabling accurate and repeatable test results



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# WORKING PRINCIPLE

The Weathering Simulator operates using an advanced Xenon Arc Lamp that closely replicates the full spectrum of natural sunlight. Test specimens are exposed to controlled combinations of light, heat, and humidity to accelerate the effects of outdoor weathering. The chamber continuously regulates irradiance, temperature, and moisture conditions while rotating the specimen rack to ensure uniform exposure. This accelerated testing process helps evaluate colour fastness, material degradation, durability, and long-term performance, allowing manufacturers and researchers to predict the service life of products under real-world environmental conditions within a significantly shorter timeframe.

# CONSTRUCTION

The Weathering Simulator is constructed with a robust, industrial-grade double-walled structure designed for long-term performance and operational reliability. The inner chamber is fabricated from high-quality corrosion-resistant stainless steel, ensuring excellent resistance to moisture, heat, and environmental exposure. The outer body is manufactured from heavy-duty powder-coated steel for superior durability and an attractive finish. High-density thermal insulation is provided between the chamber walls to minimize heat loss and maintain stable testing condi tions. The chamber incorporates a precision-engineered specimen rotation system, optimized airflow design, and a UV-resistant observation window for effective monitoring. All critical components are strategically integrated to ensure uniform exposure, ease of maintenance, operator safety, and consistent testing performance

# TECHNICAL SPECIFICATIONS

| Parameter | Specification |
|---|---|
| Model | RMI-WS-60 |
| Manufacturer | Roch Mechatronics Inc. |
| Applicable Standards | ASTM G151, ASTM G155, ASTM D2565, ISO 105-B02, ISO |
| Light Source Type | Air-Cooled Xenon Arc Lamp |
| Lamp Power | 2200 W or higher |
| Irradiance Range | 30–50 W/m² (300–400 nm) or equivalent |
| Exposure Area | Approx. 2300 cm² or higher |
| Specimen Capacity | Up to 35 specimens or more |
| Standard Specimen Size | 135 x 45 mm |
| Maximum Specimen Thickness | 10 mm |
| Black Standard Temperature | 40°C to 100°C |
| Chamber Temperature Range | Ambient +10°C to 65°C or higher |
| Humidity Range | 20% to 85% RH or wider |
| Humidity Generation | Ultrasonic humidification system |
| Water Tank Capacity | 60 Litres or more |
| Control System | Microprocessor-based PID controller with 10" TFT touch |
| Display Features | Real-time graphical display of temperature, humidity, |
| Data Logging | Built-in memory with USB/Ethernet data export |
| Connectivity | Ethernet communication with remote monitoring support |
| Programmable Methods | Multiple preloaded standards and user-defined programs |
| Automatic Functions | Auto shutdown, auto restart after power recovery, and |
| Safety Features | Over-temperature protection, low water level alarm, lamp |
| Power Supply | 230 VAC ±10%, 50 Hz, Single Phase |
| Observation Window | UV-resistant viewing window |
| Construction | Heavy-duty industrial construction with optimized airflow |
| Optional Accessories | Water purification unit, voltage stabilizer, additional |

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