

Rain & Spray Test Chambers Multiple spray tests in one system

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ESPEC makes rain and spray testing easier by offering a standard chamber capable of published and OEM proprietary test methods.

The standardized design can be configured for the rain/spray tests you need, eliminating the guesswork in buying a chamber. The system is based on the IP and SAE specification requirements used for electronics, enclosures, and automotive parts.

Our Design

Our system uses multiple control solenoids to vary the water's spray volume/pressure. A holding tank prepares the water to the desired temperature if required. A pump ensures the water is delivered in the proper pressure range. The spray is activated via a programmable controller that sets the test mode and its desired parameters.

Automotive standards JIS D 0203, SAE J575

The SAE specification J2245 is modeled after the JIS D0203. Details about the nozzles, rotating spray arms, and product table are also included. Additionally, drip and car wash tests are also specified. This test standard features spray arms with adjustable pressure/volume output.

- **Heavy splash/shower** S1,S2 Spray room temperature water with 40 nozzles
- **Light spray/rain** R1, R2 Spray room temperature water with two nozzles

Examples of OEM automotive manufacturers' requirements

- Heat the sample to a temperature above boiling, then spray with cold water for about two minutes. Repeat cycle.
- Heat the sample to boiling temperature, then spray with room temperature water for about fifteen minutes. Repeat cycle.

IP Code / IEC Standard 60529 Ingress Protection

- Dripping water (IP 1 and 2)
- Oscillating splash/spray with "halo" spray arm (IP 3 and 4)
- Ten-foot water jet (IP 5 and 6)
- Car-wash-style water jets at 80°C (IP 9X)
- Rotating test table (required for several tests)

The following ESPEC rain chamber video demonstrates water spray testing methods that comply with IEC standard 60529 (Ingress Protection or IP/IPX).



Features for Rain & Spray Test Chambers

- Stationary product shelf (a rotating shelf is optional)
- Water pressure regulators, gauges, and flow meters
- Special high-volume floor drain system to rapidly drain water out of the chamber
- Viewing window with wiper

Applicable test methods

- IP Code / IEC standard 60529 "Ingress Protection"
- JSA JIS (Japanese Industrial Standard) D 0203 "Method of Moisture, Rain and Spray Test for Automobile Parts"
- SAE (Society of Automotive Engineers) J2245 "Recommended Practice for Splash and Spray Evaluation"
- SAE J575 "Test Methods and Equipment for Lighting Devices and Components"

Optional/additional test capabilities:

- Temperature/humidity controlled chamber: Includes -20 to 150°C and 20 to 95%RH capabilities
- Water recirculation: Allows re-use of the treated rain water
- Water conditioning: Allows the water to be cooled (5 to 20°C) prior to spray
- High pressure spray: Adds capability to meet car wash test requirement
- Drip grid: Adds capability to meet drip test requirement
- Rotating table: Rotates the sample for full exposure to spray

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