IPX5 IPX6 Test Nozzle

IEC 60529 Precision Water Jet Spray Nozzle

Professional Handheld & Chamber-Integrated Testing Solution

Compliant with IEC 60529 IPX5 & IPX6

KingPo Test Equipment Co., Ltd.

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Product Overview

The KingPo IPX5 IPX6 Test Nozzle is a professional-grade water jet test nozzle set engineered to verify the ingress protection performance of electrical enclosures against water jets in full compliance with IEC 60529. The complete set comprises precision-machined IPX5 and IPX6 nozzles, a spray handle, pressure gauge, and flow meter, delivering stable flow control and highly repeatable test results.

This versatile solution can be operated as a standalone handheld device or seamlessly integrated with the KingPo IPX5/IPX6 Water Jet Test Chamber. It is precision-machined from a single block of premium SUS304 stainless steel, featuring mirror-polished internal surfaces that ensure laminar flow and minimal turbulence. Both the 6.3 mm and 12.5 mm nozzles are manufactured to extremely tight tolerances (±0.1 mm), guaranteeing consistent jet geometry and stable performance across repeated tests.

IPX5 and IPX6 testing is essential for products exposed to water jets from any direction, such as outdoor equipment, automotive components, and industrial enclosures. Reliable test data helps manufacturers meet stringent OEM requirements, achieve regulatory compliance, and reduce field failure risks associated with water ingress.

Key Advantages

- **Precision-Machined Dual Nozzles** Engineering: Dedicated 6.3 mm (IPX5) and 12.5 mm (IPX6) nozzles precision-machined from a single block of SUS304 stainless steel with ±0.1 mm tolerance and mirror-polished internal surfaces. Benefit: Delivers laminar flow with minimal turbulence, ensuring highly consistent jet geometry and repeatable test results accepted by certification bodies worldwide.
- **Integrated Real-Time Monitoring** Engineering: Includes high-accuracy pressure gauge and flow meter for precise, real-time adjustment and monitoring of flow rate (12.5 L/min for IPX5; 100 L/min for IPX6) and pressure (0–0.25 MPa). Benefit: Enables operators to maintain exact test conditions throughout the procedure, minimizing variability and supporting full traceability for audits and compliance documentation.
- **Flexible Dual-Mode Operation** Engineering: Designed for standalone handheld use or direct integration with KingPo IPX5/IPX6 Water Jet Test Chambers via 1/2″ BSP quick-connect fittings. Benefit: Offers maximum flexibility, reduces setup time, and improves testing efficiency across laboratory and production environments.
- **Premium Corrosion-Resistant Construction** Engineering: Full SUS304 stainless steel nozzles with brass fittings and robust spray handle for superior durability in demanding test conditions. Benefit: Ensures long service life, minimal maintenance, and reliable performance even with continuous daily use in laboratory and industrial settings.
- **Quick Nozzle Switching & Calibration-Ready** Engineering: Tool-free nozzle replacement between IPX5 and IPX6 tests; each unit supplied with traceable factory calibration certificate. Benefit: Minimizes downtime during test sequences and provides immediate audit-ready documentation, supporting ISO/IEC 17025 laboratory requirements.
- **Complete Ready-to-Use System** Engineering: Supplied as a complete set including spray handle, pressure gauge, flow meter, and both nozzles in a single professional package. Benefit: Eliminates the need for separate component sourcing, ensuring immediate deployment and consistent test setup across all operators.

Technical Specifications

3.1 Performance Parameters

Parameter	IPX5	IPX6	Tolerance / Notes
Nozzle Internal Diameter	6.3 mm	12.5 mm	±0.1 mm; per IEC 60529
Water Flow Rate	12.5 L/min	100 L/min	±5%; adjustable via flow meter
Test Distance	2.5 – 3.0 m	2.5 – 3.0 m	Standard IEC 60529 requirement
Operating Pressure	0 – 0.25 MPa	0 – 0.25 MPa	Adjustable; real-time gauge monitoring
Test Duration	≥ 1 min/m²	≥ 1 min/m²	Minimum 3 minutes total

3.2 Mechanical Structure

Nozzle Material: Premium SUS304 stainless steel, precision-machined from a single block with mirror-polished internal surfaces for laminar flow.

Fittings & Connections: 1/2″ BSP / Quick-connect compatible with most laboratory water supply systems and KingPo test chambers.

Included Components: IPX5 nozzle (6.3 mm) + IPX6 nozzle (12.5 mm) + Spray handle + Pressure gauge + Flow meter (complete ready-to-use set).

Construction: Robust brass fittings and ergonomic spray handle for superior durability and operator comfort during extended testing sessions.

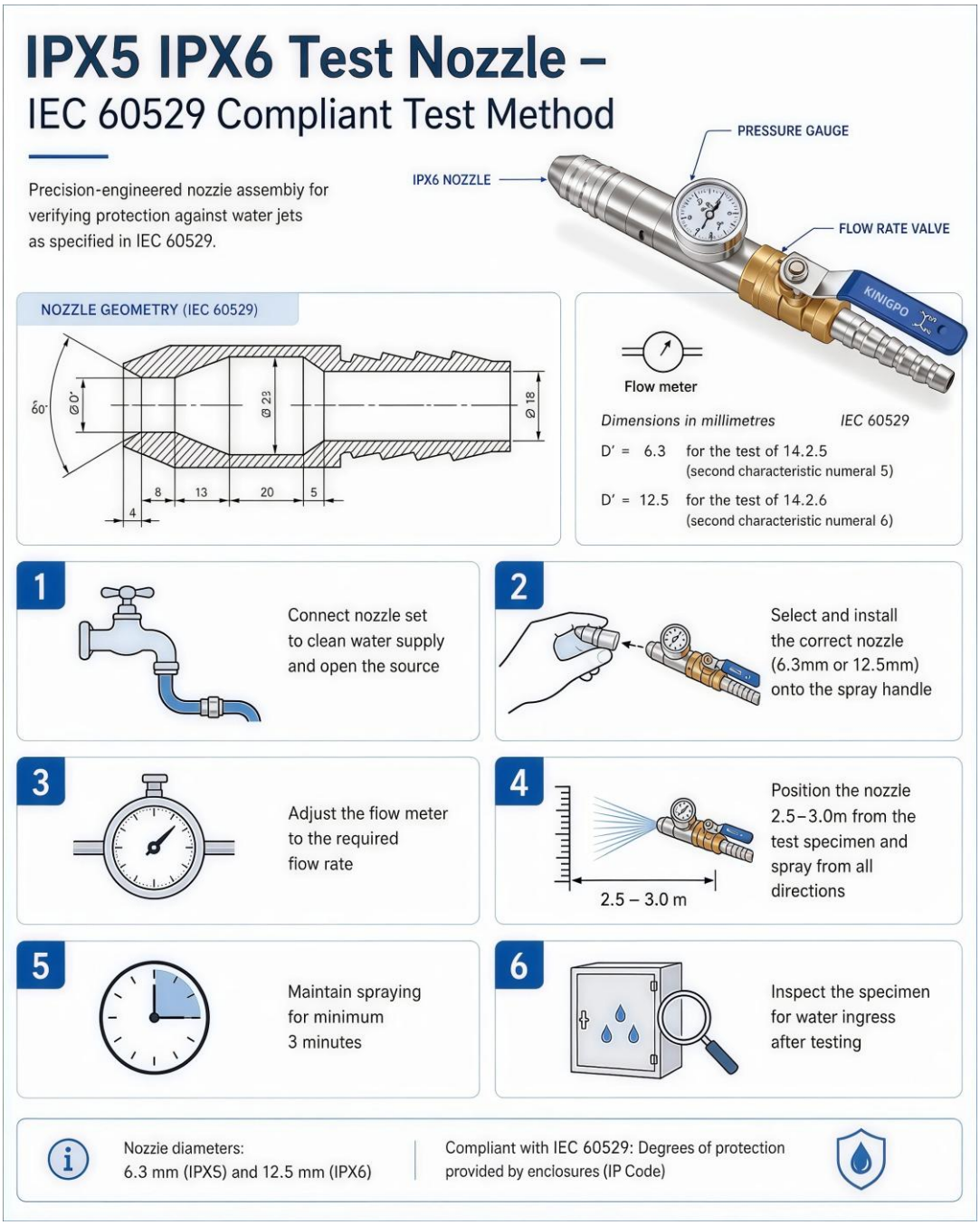
3.3 Control & Monitoring System

Real-Time Monitoring: Integrated high-accuracy pressure gauge (0–0.25 MPa range) and flow meter for precise, continuous

adjustment and verification of test parameters.

Operation: Fully mechanical with no dedicated electrical components required; compatible with standard laboratory water supply (filtered or deionized recommended).

Test Procedure (IEC 60529 IPX5 / IPX6)

1. Select the appropriate nozzle (6.3 mm for IPX5 or 12.5 mm for IPX6) and securely attach it to the spray handle using the quick-connect fitting.
2. Connect the assembly to a filtered water supply and adjust the flow rate using the integrated flow meter (12.5 L/min ±5% for IPX5; 100 L/min ±5% for IPX6).
3. Position the nozzle at a distance of 2.5–3.0 m from the specimen surface and verify operating pressure (0–0.25 MPa) via the pressure gauge.
4. Direct the water jet from all practical directions while maintaining the specified flow rate and pressure, ensuring complete coverage of the enclosure.
5. Conduct the test for a minimum duration of 3 minutes or ≥1 min per square meter of enclosure surface area, whichever is longer.
6. After test completion, inspect the specimen for water ingress. Record all parameters (nozzle size, flow rate, pressure, duration, observations) and generate a traceable test report.
7. 

Fully compliant with IEC 60529 IPX5 and IPX6 water jet test requirements.

Typical Applications

- **Household Appliances:** IPX5/IPX6 water jet testing for external components, control panels, and enclosures of washing machines, dishwashers, and outdoor appliances.
- **Lighting & Luminaires:** Comprehensive waterproof validation for outdoor, architectural, and industrial LED lighting fixtures.
- **Electrical Equipment & Cabinets:** Ingress protection testing for control cabinets, power distribution systems, and industrial enclosures exposed to water jets.
- **Third-Party Certification Laboratories:** Formal IEC 60529 IPX5 and IPX6 compliance and type approval testing.
- **Automotive & EV Components:** Water jet resistance validation for battery packs, charging ports, sensors, and high-voltage connectors.

Optional Modules & Ordering Information

Optional Upgrades

- ISO/IEC 17025 third-party accredited calibration report
- Custom nozzle thread specifications or extended hose lengths
- Integration kit for seamless connection to KingPo IPX5/IPX6 Water Jet Test Chambers
- Spare nozzle sets and replacement gauges/flow meters

Standard Configuration

Complete set: IPX5 (6.3 mm) + IPX6 (12.5 mm) precision nozzles + Spray handle + Pressure gauge + Flow meter + Traceable factory calibration certificate + User manual. MOQ: 1 set. Delivery: 10 working days.

Compliance & Manufacturer

This equipment is engineered and manufactured in strict accordance with IEC 60529 for IPX5 (6.3 mm nozzle) and IPX6 (12.5 mm nozzle) water jet testing. All critical dimensions and flow parameters are traceable to national metrology standards. A factory calibration certificate with full traceability is included as standard. ISO/IEC 17025 accredited third-party calibration is available upon request.

The system is manufactured under ISO 9001 quality management system and supports compliance documentation for global market access.

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