ISO 20653 IPX6K Water Jet Test Equipment

High-Pressure Water Jet Test Equipment for Road Vehicle Electrical Components

Standards: ISO 20653 IPX6K, DIN 40050-9
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Product Overview

The KingPo ISO 20653 IPX6K Water Jet Test Equipment is a specialized high-pressure water jet testing system designed for road vehicle water ingress testing according to ISO 20653 IPX6K and DIN 40050-9. It evaluates the ability of automotive electrical components to withstand powerful water jets during vehicle operation or high-pressure cleaning.

This equipment is suitable for automotive electronics manufacturers, electric vehicle component suppliers, testing laboratories, and certification bodies to assess the sealing performance of sensors, EV connectors, vehicle lamps, battery pack parts, ECU housings, and other road vehicle electrical components under high-pressure water jet conditions.

Key Advantages

- **Designed for ISO 20653 IPX6K High-Pressure Water Jet Testing**
  Engineering: Φ6.3 mm precision nozzle delivering approximately 1000 kPa (10 bar) water jet from 2.5–3.0 m distance for a minimum of 3 minutes, fully compliant with ISO 20653 IPX6K and DIN 40050-9.
  Benefit: Enables accurate evaluation of component sealing performance under powerful water jet conditions that simulate high-pressure vehicle washing or severe operational exposure.
- **Mitsubishi PLC + Touch Screen with Frequency Conversion Control**
  Engineering: Advanced Mitsubishi PLC with 7-inch color touchscreen and frequency conversion control for precise, stable regulation of water pressure and flow rate.
  Benefit: Delivers highly repeatable and accurate test conditions with minimal variation, improving test reliability and traceability for automotive compliance testing.
- **Rotating Sample Table for Uniform Exposure**
  Engineering: Φ620 mm stainless steel rotatable sample table with 1 r/min speed, bidirectional control, and maximum load of 50 kg.
  Benefit: Ensures uniform water jet exposure from all directions, supporting consistent and representative testing of various component sizes and shapes.
- **Robust Stainless Steel Construction and Water Supply System**
  Engineering: Stainless steel multistage centrifugal pump with automatic flow and pressure regulation, combined with robust stainless steel spray system components.
  Benefit: Provides long-term durability and corrosion resistance in high-pressure water environments while maintaining stable performance with minimal maintenance.

Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Remark / Notes
Applicable Standard	ISO 20653 IPX6K, DIN 40050-9	High-pressure water jet test for road vehicle electrical equipment
Nozzle Diameter	Φ6.3 mm	Precision nozzle for powerful water jet
Water Pressure	Approximately 1000 kPa (10 bar)	High-pressure jet with stable control
Water Flow Rate	75 L/min	Stable flow maintained via frequency conversion
Spray Distance	2.5–3.0 m (adjustable)	Distance from nozzle to sample
Test Duration	Minimum 3 minutes (programmable)	User-defined test time
Sample Table	Φ620 mm stainless steel, max load 50 kg	Rotatable at 1 r/min with bidirectional control
Control System	Mitsubishi PLC + 7-inch color touchscreen	Frequency conversion for stable pressure and flow
Water Pump	Stainless steel multistage centrifugal	Provides constant high-pressure water supply

Testing Principle

The IPX6K test exposes the equipment to a powerful water jet from a Φ6.3 mm nozzle at approximately 1000 kPa from a distance of 2.5–3.0 m for a minimum of 3 minutes. The sample rotates on the table to ensure uniform exposure from all directions.

This simulates high-pressure water jet conditions encountered during vehicle operation or high-pressure washing, evaluating whether water penetrates the component and affects its functionality, ensuring sealing reliability and durability for road vehicle electrical components.

Best Practices

1. Ensure the nozzle is clean and free from blockage before each test.
2. Verify stable water pressure at approximately 1000 kPa and flow rate of 75 L/min.
3. Position the sample at the correct distance (2.5–3.0 m) from the nozzle.
4. Use the rotatable table to ensure uniform exposure from all directions.
5. Regularly inspect and maintain the high-pressure pump and filtration system for stable performance.

Typical Applications

- Automotive electronics manufacturers — IPX6K high-pressure water jet testing of sensors, ECUs, and lighting
- Electric vehicle component suppliers — Waterproof testing of high-voltage parts and connectors
- Testing laboratories — ISO 20653 IPX6K compliance testing
- Certification bodies — Safety evaluation of road vehicle electrical components
- Quality assurance teams — Routine verification of component sealing performance under high-pressure conditions

Supply Options & Support

MOQ: 1 set | Typical delivery: 30 working days

Technical support is available for equipment operation and ISO 20653 IPX6K test method application.

Compliance & Manufacturer

This equipment is designed to meet ISO 20653 IPX6K and DIN 40050-9 requirements for high-pressure water jet testing of road vehicle electrical equipment.

Manufactured under ISO 9001, ISO 14001, and ISO 45001 certified management systems. CE, RoHS, PSE, and SGS documentation can be provided upon request according to the applicable equipment configuration.

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