Water Immersion Test Chamber

IEC 60529 IPX8 Hydrostatic Pressure Tester

Professional Technical Datasheet

Standards: IEC 60529 IPX7 / IPX8 • GB/T 4208

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

Product Overview

The KingPo Water Immersion Test Chamber IEC 60529 IPX8 is a professional high-precision hydrostatic pressure testing system specifically designed to evaluate the water resistance performance of electrical enclosures, sealed electronic products, automotive components, underwater equipment, and other devices under continuous immersion up to 30 meters depth.

This compact yet powerful chamber delivers precise pressure control (0–0.3 MPa with 0.001 MPa resolution) and fully complies with IEC 60529 IPX7/IPX8 and GB/T 4208 standards. It provides laboratories and manufacturers with a reliable, repeatable platform to verify sealing integrity, reduce field failures, and accelerate compliance certification for demanding underwater and outdoor applications.

Key Advantages

● High-Precision Pressure Control (0–0.3 MPa)

Engineering: Digital pressure sensor with 0.001 MPa resolution and microprocessor control simulating up to 30 m water depth for IPX8 testing.

Benefit: Delivers exceptional accuracy and repeatability for critical sealing validation under realistic hydrostatic conditions.

● Robust SUS304 Chamber with Observation Window

Engineering: φ500 × H500 mm SUS304 stainless steel chamber (3 mm wall) with large tempered safety glass observation window and high-performance silicone gasket.

Benefit: Provides excellent corrosion resistance, clear real-time visual monitoring, and superior leak-proof performance under pressure.

● Intelligent Mitsubishi PLC + 7-inch Touchscreen

Engineering: Mitsubishi PLC with 7-inch color touchscreen, 15 programmable parameter groups, automatic pressure relief, and USB data export.

Benefit: Simplifies complex test programming, enables multi-sample testing, and provides complete traceable digital records for audits.

● Flexible Multi-Sample Testing Capability

Engineering: Supports 1–3 samples per cycle with multi-standard interchangeable fixtures and customizable holders.

Benefit: Increases testing throughput while maintaining precise individual specimen monitoring and compliance.

● Comprehensive Safety & Protection System

Engineering: Over-pressure relief (automatic at 0.35 MPa), overload/short-circuit protection, water shortage detection, and buzzer alarm.

Benefit: Ensures maximum operator safety and equipment protection during high-pressure testing operations.

● Traceable Calibration & Professional Support

Engineering: Factory calibration certificate included; optional ISO/IEC 17025 third-party accreditation with full documentation and technical support.

Benefit: Guarantees immediate laboratory readiness, long-term measurement traceability, and reliable compliance documentation.

Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Test Condition / Method
Pressure Range	0–0.3 MPa (0–3 bar)	Digital sensor, 0.001 MPa resolution
Immersion Depth Simulation	Up to 30 m (IPX8) / 1 m (IPX7)	Microprocessor controlled, high stability
Timer Range	0–999 minutes	Programmable with auto stop & alarm
Test Accuracy	Pressure: 0.2% FS | Depth: ±1 mm	Meets IEC 60529 & GB/T 4208
Specimen Capacity	1–3 samples per cycle	Multi-standard interchangeable fixtures

3.2 Mechanical & Chamber Construction

Parameter	Specification	Notes
Chamber Dimensions	φ500 × H500 mm	Compact laboratory footprint
Chamber Material	SUS304 stainless steel, 3 mm wall	Excellent corrosion resistance
Observation Window	Large tempered safety glass	Real-time visual monitoring

Seal Type	High-performance silicone gasket	Superior leak-proof under pressure

3.3 Electrical & Control System

Parameter	Specification	Notes
Control System	Mitsubishi PLC + 7-inch color touchscreen	15 programmable groups + USB export
Power Supply	AC 220 V ±10%, 50 Hz	Low power consumption
Safety Protections	Over-pressure (auto relief at 0.35 MPa), overload, water shortage, buzzer alarm	Comprehensive interlock system

Test Procedure (IEC 60529 IPX8)

Prepare and secure 1–3 test specimens using the appropriate interchangeable fixtures inside the chamber.

Fill the chamber with clean water and seal the lid with the high-performance silicone gasket.

Program the required pressure (0–0.3 MPa), duration (up to 999 minutes), and test parameters via the 7-inch Mitsubishi PLC touchscreen.

Initiate the test; the system automatically ramps up and maintains precise hydrostatic pressure corresponding to the target immersion depth (up to 30 m for IPX8).

Monitor real-time pressure and visual condition through the large tempered glass window throughout the cycle.

Upon completion, the system automatically and safely relieves pressure. Remove specimens and inspect for internal water ingress per IEC 60529 acceptance criteria.

Fully compliant with IEC 60529 IPX7 (temporary immersion) and IPX8 (continuous immersion up to 30 m) requirements.

Typical Applications

• Electronic Products — Waterproof integrity testing of sealed consumer and industrial devices.
• Electrical Enclosures — IPX7/IPX8 protection verification for outdoor, marine, and underwater installations.
• Automotive Components — Sensors, connectors, ECUs, and lighting modules water resistance testing.
• Diving and Marine Equipment Manufacturers — High-pressure immersion validation for underwater devices.
• Third-Party Certification Laboratories — Compliance testing according to IEC 60529 and GB/T 4208.

Optional Modules & Models

Optional Upgrades

• Customizable holders and fixtures for special specimen shapes or higher sample quantities.
• Advanced data logging, remote monitoring, and automatic PDF report generation.
• ISO/IEC 17025 accredited third-party calibration report.
• Integration with temperature control or additional environmental simulation functions.

Standard Model

Model Code	Description	Standard Configuration
KP-IPX8-500	Compact IPX8 Water Immersion Chamber	φ500 × H500 mm SUS304 chamber + Mitsubishi PLC + 7" touchscreen + fixtures + factory calibration

Compliance & Manufacturer

This Water Immersion Test Chamber is engineered and manufactured in strict accordance with IEC 60529 for IPX7 and IPX8 water immersion testing, as well as GB/T 4208.

Each unit is delivered with a comprehensive factory calibration certificate as standard, ensuring immediate laboratory readiness and measurement traceability. ISO/IEC 17025 accredited third-party calibration is available upon request. Annual verification of pressure sensors and system performance is recommended.

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