

IPX7 / IPX8 Water Immersion Test Chamber

IEC 60529 Pressure Immersion Tester

Professional Technical Datasheet



Standards: IEC 60529 IPX7 / IPX8

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

Product Overview

The KingPo IPX7 / IPX8 Water Immersion Test Chamber is a professional pressure-immersion testing system designed to verify the ingress protection performance of electrical products and sealed enclosures under temporary (IPX7) and continuous (IPX8) water immersion conditions in accordance with IEC 60529.

This chamber provides testing laboratories and manufacturers with a reliable, repeatable solution to evaluate product integrity in deep-water or pressurized environments. It helps reduce field failures, accelerate compliance certification, and support applications in automotive, marine, outdoor, industrial, and EV sectors where robust waterproofing is critical.

Key Advantages

• Dual IPX7 & IPX8 Capability in One System

Engineering: Single robust chamber performs both temporary immersion (IPX7) and continuous pressurized immersion (IPX8) with selectable pressure up to 3 MPa.

Benefit: Maximizes equipment utilization and flexibility while ensuring full compliance with IEC 60529 for both test levels.

• High-Accuracy Pressure Control & Automation

Engineering: Automatic pressurization system with digital pressure gauge, programmable timer (0–99 h 59 min), and real-time monitoring.

Benefit: Delivers precise, repeatable test conditions with minimal operator intervention and complete data traceability.

• Robust 304 Stainless Steel Construction

Engineering: 304 stainless steel tank (3–5 mm thickness) with comprehensive safety features including over-pressure relief valve, emergency stop, and leakage protection.

Benefit: Ensures long-term durability, corrosion resistance, and safe operation under high-pressure conditions.

• Flexible Model Sizes & Easy Specimen Handling

Engineering: Available in Ø600 mm (KP-IP78-500) and Ø1000 mm (KP-IP78-1000) tank diameters with portable stainless steel hanging basket (up to 50 kg load).

Benefit: Accommodates a wide range of product sizes with convenient loading/unloading and customizable configurations.

• Real-Time Visual Monitoring & Safety

Engineering: Graduation scale + transparent water level pipe for accurate visual monitoring combined with automatic pressure control and safety interlocks.

Benefit: Provides immediate visual confirmation of test conditions while ensuring operator safety and preventing over-pressurization.

• ISO 9001 Certified Manufacturer Support

Engineering: Full documentation, traceable factory calibration, on-site installation guidance, and responsive technical support from an ISO 9001 certified facility.

Benefit: Ensures regulatory compliance, smooth commissioning, and long-term reliability with professional after-sales service.

Technical Specifications

3.1 Performance Parameters

Parameter	Specification	Test Condition / Method
Pressure Range	0–0.3 / 0–0.5 / 0–1 / 0–3 MPa (selectable)	Meets IPX7 (temporary) & IPX8 (continuous)
Test Duration	0–99 h 59 min (programmable)	Digital timer with automatic stop
Tank Diameter	Ø600 mm (KP-IP78-500) / Ø1000 mm (KP-IP78-1000)	Custom sizes available
Tank Height	1000 mm / 1500 mm	Effective immersion depth
Max. Specimen Load	Up to 50 kg	Portable stainless steel hanging basket
Water Level Monitoring	Graduation scale + transparent pipe	Real-time visual accuracy

3.2 Mechanical & Chamber Construction

Parameter	Specification	Notes
Tank Material	304 Stainless Steel (3–5 mm thick)	Corrosion-resistant, pressure-proof

Pressurization Device	Air compressor (≤ 0.5 MPa) / Test pump (> 0.5 MPa)	Automatic pressure control + safety valve
Lifting / Handling	Portable stainless steel hanging basket	Easy loading/unloading
Water Level Display	Graduation scale + transparent pipe	Accurate visual monitoring

3.3 Electrical & Control System

Parameter	Specification	Notes
Control System	Digital pressure gauge + programmable timer	Real-time display & automatic stop
Power Supply	220 V 1 kW (low pressure) / 380 V 3 kW (high pressure)	Stable industrial power
Safety Protections	Over-pressure relief valve, emergency stop, leakage protection	Comprehensive interlocks

Test Procedure (IEC 60529 IPX7 / IPX8)

Secure the test specimen in the portable stainless steel hanging basket and lower it into the pressure tank.

Fill the tank with clean, filtered water to the required level (monitored via graduation scale and transparent pipe).

Seal the chamber and select the appropriate pressure range (e.g., 0.1 MPa for IPX7 at 1 m depth or higher for IPX8).

Set the test duration on the programmable digital timer (typically 30 minutes for IPX7; extended periods for IPX8).

Activate automatic pressurization; the system maintains precise pressure with real-time monitoring and automatic stop at cycle end.

After the test, depressurize safely, remove the specimen, and inspect for water ingress according to IEC 60529 acceptance criteria.

Fully compliant with IEC 60529 IPX7 (temporary immersion) and IPX8 (continuous immersion under pressure) requirements.

Typical Applications

- Automotive and EV Manufacturers — Sealing validation for battery packs, sensors, connectors, and high-voltage components.
- Marine and Underwater Equipment Producers — IPX8 testing for deep-water electronics, lighting, and sensors.
- Outdoor and Industrial Lighting — Long-term immersion resistance verification for exterior fixtures.
- Electrical Enclosure Manufacturers — Compliance testing for control cabinets, power distribution, and outdoor equipment.
- Third-Party Certification Laboratories — IEC 60529 IPX7/IPX8 formal testing and type approval support.
- R&D and Quality Assurance Departments — Accelerated reliability testing during product development and batch verification.

Optional Modules & Models

Optional Upgrades

- Custom tank sizes and higher pressure ratings (beyond 3 MPa).
- Integrated temperature control for heated or chilled immersion tests.
- Special fixtures for large or irregularly shaped specimens.
- Advanced data logging, remote monitoring, and automatic report generation.
- ISO/IEC 17025 accredited third-party calibration report.

Standard Models

Model Code	Description	Standard Configuration
KP-IP78-500	Standard IPX7/IPX8 Chamber ($\varnothing 600$ mm)	Tank + hanging basket + digital control + factory calibration certificate
KP-IP78-1000	Large IPX7/IPX8 Chamber ($\varnothing 1000$ mm)	Larger tank + enhanced capacity + same core features
KP-IP78-CUST	Custom IPX7/IPX8 System	Custom tank size, pressure rating, temperature control, or special fixtures

Compliance & Manufacturer

The IPX7 / IPX8 Water Immersion Test Chamber is engineered and manufactured in strict accordance with IEC 60529 for both IPX7 (temporary immersion) and IPX8 (continuous immersion under pressure) testing.

Each unit is delivered with a traceable factory calibration certificate. ISO/IEC 17025 accredited third-party calibration is available upon request. Regular verification of pressure accuracy, timer function, and safety valves is recommended to maintain traceability.

KingPo Test Equipment Co., Ltd.

Specialist in Precision Environmental, Ingress Protection & Reliability Test Systems

Address: Hengkeng Industrial Zone, Dongguan, Guangdong, China

Tel: +86-769-81627526

Website: www.dgkingpo.com

Email: sales@dgkingpo.com

Precision Metrology • Regulatory Compliance • Engineering Reliability