i-Hydro 7320 Water Vapor Transmission Rate Testing System

- ❖ Online Data Management System for Packaging Testing - The ultimate cloud computing technology for test data processing and management
- ❖ Designed with embedded computer control system and intelligent operating software
- ❖ Can be used for plastic films, composite films, sheets, foils, solar back-sheets, construction material and many other materials
- ❖ Conforms to ASTM, ISO, JIS, and multiple international standards

Online data management system for packaging testing

Comes with two versions to meet distinct needs of our clients:

The Cloud Version

- Consist of 6 functional modules: Test Management, Target Management, Instrument Management, File Management, Settings, and Online Support
- Cloud services: storage, calculation, and analysis of mass test data
- Automatically upload original test data to the cloud server to guarantee data security
- Intelligent statistical analysis of test results
- Easily accessible through the internet on PCs, laptops, mobile phones, and other devices anywhere and anytime, to check and review real time test results and historical test reports, as well as analytical graphs and statistical information

The Intranet Version

- Featured with storage space for vast data, correlation analysis, trend analysis, and statistical analysis of test data, as well as report printing and data export functions
- Easily accessible via computers through Intranets
- "One Click Upgrade" to the powerful "Cloud Version"

Functionality

- Based on Water Method (ASTM E96) and strictly conforms to testing standards
- Individually and periodically weighing mechanism for 6 test dishes and automatic reset before weighing
- Wide range of automatic temperature and humidity control to support various combinations of non-standard test conditions
- Standard air velocity enables uniform humidity control and better precision
- Convenient fast-access calibration port for temperature and humidity
- Reference film or standard weight for fast and accurate calibration

Design

- Weighing of test dishes is controlled by gas cylinder which ensures the accuracy and stability of test data.
- Individual test in 6 test dishes and test results displayed independently
- Embedded computer control system provides safer and more reliable data management as well as test operation
- The system can be easily connected to a maximum of 9 satellite bases to accomplish up to 60 tests at the same time
- The instrument can be easily operated with a mouse, a keyboard, and a monitor, without requiring a PC.
- The instrument is equipped with four USB ports and dual Internet ports for convenient input, output, and data transfer
- Sophisticated energy consumption and test environment monitoring and analysis functions for better test accuracy and reliability. (Relevant sensors are needed. For more information, please refer to the configuration in Technical Specifications.）
- Universal power input for easy access

Software

- **Interface:** Windows-based operating interface
- **Statistics:** easy calculation for historical results, instrument usage, energy consumption, and large statistical information
- **Data Comparison:** by presetting target value and range, the system automatically generates data comparison after each test and intelligently judges whether the specimen passes or fails the test
- **Test Report:** can provide detailed test reports in various customized patterns
- **Energy Consumption and Test Status Monitoring (Additional Sensors Required):** the system monitors and displays real-time voltage, current, energy consumption, vibration, and inclination angle of instrument as well as ambient temperature and relative humidity during the test, which serves to evaluate test data reliability
- **User Management:** multi-level account control for better data management and protection
- **Operation Log:** system automatically records all the operations by the user, which is easy to review

Test Principle

- ❖ At a certain test temperature, a constant humidity difference is generated between two sides of the test specimen. The water vapor permeates through the specimen and into the dry side. By measuring the weight changes of the test dish at different time, water vapor transmission rate and other parameters can be obtained.

- ❖ This instrument conforms to the following standards:
  ASTM E96, ASTM D1653, ISO 2528, GB 1037, GB/T 16928, TAPPI T464, DIN 53122-1, JIS Z0208, YBB 00092003

Applications

This instrument is applicable to the determination of water vapor transmission rate of:

Basic Applications	Films	Including plastic films, plastic composite films, paper-plastic composite films, coextruded films, aluminized films, aluminum foils, aluminum composite films, and many others
	Sheeting	Including engineering plastics, rubber, and building materials, e.g. PP, PVC, and PVDC
	Paper and Paper Board	Including paper and paper board, e.g. aluminum foil paper for cigarette packages and Tetra Pak materials
	Textiles and Nonwovens	Including textiles and non-woven materials, e.g. waterproof breathable fabric, non-woven fabric for diapers and hygienic products
Extended Applications (Additional Accessories Required)	Inverted Cup Method	Mount film or sheeting in test dish, cover upper surface of specimen with distilled water, and make the lower side in certain humidity. Generate a constant humidity difference between two sides; water vapor permeates through specimen and measure weight changes in different time to obtain the water vapor transmission rate. NOTE: inverted cups are required
	Artificial Skin	This instrument can be used to test water vapor permeability of artificial skin
	Medical Products and Accessories	Including plasters, aseptic wound protecting films, face masks, and scar sticks
	Solar Back-Sheets	Including solar back-sheets
	LCD Monitor Films	Including LCD monitor films
	Paint Films	Test water vapor permeability of various sorts of paint films
	Cosmetics	Test water vapor permeability of cosmetics
	Biodegradable Films	Test water vapor permeability of various sorts of biodegradable films, e.g. starch-based packaging films

Technical Specifications

Test Specs	Test Range	0.1 ~ 10,000 g/m²·24h (Standard)
	Test Accuracy	0.01 g/m²·24h
	Resolution	0.0001 g

	Test Temperature	15 °C ~ 55 °C (Standard)
	Accuracy	±0.1 °C
	Test Humidity	10% ~ 98% RH (standard is 90% RH)
	Accuracy	±1% RH
	Air Velocity	0.02 ~ 0.3 m/s (customization available)
	Number of Specimens	1 ~ 6 pieces (with independent test results)
	Test Area	33 cm^2
	Specimen Thickness	≤3 mm (customization available)
	Specimen Size	Φ74 mm
	Test Chamber Size	35 L
	Extension	9 satellite bases (1-60 specimen tests)
Environment Monitoring Specs (Optional)	Voltage Monitoring Range	AC 0 ~ 250 V, with ±0.5% accuracy
	Current Monitoring Range	0 ~ 15 A, with ±0.5% accuracy
	Energy Analysis Accuracy	±0.5%
	Environmental Temperature Monitoring Range	-10 °C ~ 55 °C, with ±0.1 °C accuracy
	Environmental Humidity Monitoring Range	0 ~ 100% RH, with ±2% RH accuracy
	Vibration Monitoring Range	-2 g ~ 2 g / 0 ~ 400 Hz
	Inclination Angle Monitoring Range	-10° ~ 10°
Other Specs	Gas Supply	Air
	Gas Supply Pressure	0.6 MPa
	Port Size	Φ6 mm PU Tubing
	Power Supply	AC (85 ~ 264) V (47 ~ 63) Hz
	Instrument Dimension	660 mm (L) x 480 mm (W) x 525 mm (H)
	Net Weight	71 kg
Configurations	Standard	Mainframe (including Wireless Data Interface), Professional Software, LCD Monitor, Keyboard, Mouse, Test Dishes, Desiccant Tube, Automatic Moisture Filter, Standard Weight, Round Sample Cutter, Valve Set
	Optional	Environment Monitoring Sensors (including voltage, current, humidity, vibration, and inclination sensors), Satellite Base, Reference Films, Air Compressor, Desiccant, Printer (compatible with PCL3)
	Online Data Management System for Packaging Testing	Wireless Data Transfer Module, High Gain Antenna

Note: 1. The gas supply port of the instrument is Φ6 mm PU tubing;

2. Customers will need to provide gas supply and distilled water;

3. The given temperature and humidity control ranges are independently valid.

Please Note:

- Pictures used are for illustration purposes only and may differ from the actual product received.
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