

PERME[®] W3/060 Water Vapor Transmission Rate Test System

Professional, High Efficiency and Intelligent WVTR Test System

Professional

This instrument is based on the cup method, and is professionally applicable to the water vapor transmission rate test of film specimens. It is equipped with high resolution sensor, whose test resolution is 0.0001g. The sensor also provides excellent test sensitivity.

- Wide range and high-precision of automatic temperature and humidity control to support various combinations of non-standard test conditions
- Standard air velocity enables constant humidity difference between two sides of test dishes
- Automatic reset before weighing ensures accurate weighing data
- Gas cylinder lifting structure design and periodically weighing method to reduce system errors
- Convenient fast-access calibration ports for temperature and humidity
- Reference film or standard weight for fast and accurate calibration



High Efficiency

W3/060 system adopts the precision design of round dish rack which is equipped with 6 test dishes and supports 6 different specimens to test individually at one operation. It can be also connected with 9 satellite bases together to accomplish up to 60 tests at the same time.

- Precision design with high test efficiency and ultra-high system accuracy
- 6 distinct or equivalent specimens can be tested individually with independent test results at one operation
- The system can be easily connected to a maximum of 10 instruments to accomplish up to 60 tests at the same time

Intelligent

The instrument is equipped with the latest operating software, with user-friendly operating interface and intelligent data management functions. It also supports Lystem[™] Lab Data Sharing System, which ensures uniform management of test results and test reports.

- Based on the user-friendly Windows operating interface for easy operation
- Saves test data in different formats for convenient data transfer
- Intelligent historical data searching, comparing, analyzing and printing functions
- Supports Lystem[™] Lab Data Sharing System for uniform and systematic management of test results and test reports

Test Principle

Under 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 in different time, water vapor transmission rate and other parameters can be obtained.

This test instrument conforms to the following standards:

ISO 2528, GB 1037, GB/T 16928, ASTM E96, ASTM D1653, 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, geomembranes, coextruded films, aluminized films, aluminum foils, aluminum foil composite films, breathable waterproof 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 | 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 | Artificial skin has to meet standard requirements for water vapor transmission rate to ensure better breath performance. 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

| Specifications | Film Test |
|----------------------------|---|
| Test Range | 0.1 ~ 10,000 g/m ² ·24h (standard) |
| Number of Specimens | 1~6 with independent test results |
| Accuracy | 0.01 g/m ² ·24h |
| Resolution | 0.0001 g |
| Temperature Range | 15 °C~ 55 °C (standard) |

| | |
|-----------------------------|---|
| Temperature Accuracy | ±0.1 °C (standard) |
| Humidity Range | 90%RH~ 70%RH ^{Note} (standard is 90%RH) |
| Humidity Accuracy | ±1%RH |
| Air Velocity | 0.5~ 2.5 m/s (customization available) |
| Specimen Thickness | ≤ 3 mm (customization is available for other thickness) |
| Test Area | 33 cm ² |
| Specimen Size | Φ74 mm |
| Test Chamber Size | 35 L |
| Gas Supply | Air |
| Gas Supply Pressure | 0.6 MPa |
| Port Size | Φ6 mm PU tubing |
| Instrument Dimension | 660 mm (L) x 480 mm (W) x 525 mm (H) |
| Power Supply | 220VAC 50Hz / 120VAC 60Hz |
| Net Weight | 70 kg |

Note: Herein the “Humidity” means the humidity difference between the two sides of the film specimen. The humidity in the test chamber is 10%~30%RH accordingly.

Configurations

| | |
|--------------------------------|---|
| Standard Configurations | Instrument, Professional Software, Test Dishes, Desiccant Tube, Automatic Moisture Filter, Calibration Weight, Communication Cable, Round Sample Cutter and Valve Set |
| Optional Parts | Satellite Base, Reference Film, Air compressor and Desiccant |
| Note | 1. The gas supply port of the instrument is Φ6 mm PU tubing; 2. Customers will need to prepare for gas supply and distilled water. |