

PERME<sup>®</sup> TSY-W3 Electrolytic Detection Method Water Vapor Permeability Tester

This instrument is professionally applicable to the determination of water vapor transmission rate of plastic films, composite films, high barrier materials, back-sheets, sheeting, aluminum foils, waterproof materials, and other materials used in sanitary and medical industry. By testing the water vapor transmission rate, the technical indexes of materials could be controlled to meet the requirements for production.



### Professional Technology

- The system is controlled by micro-computer with LCD, menu interface and PVC operation panel, which could conveniently export test data, test results and test curves
- Wide range and high-precision of automatic temperature control to support combinations of non-standard test conditions
- The system could be extended for the water vapor transmission rate test of finished package containers by special customization
- Reference film for fast calibration to ensure the accurate and universal test data
- Equipped with micro-printer and RS232 port for convenient data transfer
- Supports Lystem<sup>™</sup> Lab Data Sharing System for uniform 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 into the dry side and then is taken to the sensor, where proportional electric signals will be generated. The water vapor transmission rate and other parameters can be obtained by analyzing and calculating these electrical signals.

This test instrument conforms to the following standards:  
ISO 15106-3, GB/T 21529, DIN 53122-2, YBB 00092003

### Applications

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

|                           |                       |  |
|---------------------------|-----------------------|--|
| <b>Basic Applications</b> | Films                 | Including plastic films, plastic composite films, paper-plastic composite films, coextruded films, aluminized films, aluminum foils, aluminum foil 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   |
|                           | Packages              | Including plastics, rubber, paper, paper-plastic composite, glass, and metal packages, e.g. Coke bottles, Tetra Pak materials, vacuum bags,  |

|                              |   |  |
|------------------------------|---|--|
|                              |   | metal three-piece cans, soft tube packages for cosmetic and toothpaste, and jelly cups   |
| <b>Extended Applications</b> | 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  |
|                              | Medical Products and Accessories                    | Including plasters, aseptic wound protecting films, face masks and scar sticks   |
|                              | 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   |
|                              | Package Caps  | Test seal performance of different package caps  |
|                              | Plastic Packages for Drugs and Health Care Products | Test water vapor transmission rate of plastic bottles for drug and health care products, e.g. eye drop bottles, infusion bags and health care product packages |
|                              | Blister Packs                                       | Test water vapor transmission rate of the whole blister packs  |

## Technical Specifications

| Specifications              | Film Test   |
|-----------------------------|---|
| <b>Test Range</b>           | 0.001 ~ 50 g/m <sup>2</sup> ·24h (standard)<br>0.01 ~ 1000 g/m <sup>2</sup> ·24h (optional) |
| <b>Number of Specimens</b>  | 1   |
| <b>Resolution</b>           | 0.1 ppm   |
| <b>Temperature Range</b>    | 5°C ~ 95°C  |
| <b>Temperature Accuracy</b> | ±0.1°C  |
| <b>Humidity Range</b>       | 0% RH, 2% RH~98.5% RH, 100% RH (standard is 90% RH)   |
| <b>Accuracy</b>             | ±1% RH  |
| <b>Test Area</b>            | 38.48 cm <sup>2</sup>   |
| <b>Thickness</b>            | < 1 mm (accessories required for thicker specimens)   |
| <b>Specimen Size</b>        | Φ100 mm   |
| <b>Carrier Gas</b>          | 99.999% High Purity Nitrogen (outside of supply scope)                                      |
| <b>Gas Flow</b>             | 100 mL/min  |
| <b>Gas Supply Pressure</b>  | ≥ 0.12 MPa  |
| <b>Port Size</b>            | 1/8 inch copper tubing  |
| <b>Instrument Dimension</b> | 500 mm (L) x 400 mm (W) x 360 mm (H)  |
| <b>Power Supply</b>         | 220VAC 50Hz / 120VAC 60Hz   |
| <b>Net Weight</b>           | 36 kg   |

## Configurations

|                                |   |
|--------------------------------|---|
| <b>Standard Configurations</b> | Instrument, Micro-printer, Constant Temperature Control Device, Precision Pressure Regulator for Nitrogen Cylinder, Porous Ceramic Tray, Desiccant, Round Sample Cutter and Vacuum Grease |
| <b>Optional Parts</b>          | Professional Software and Communication Cable   |

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**Note**

1. The gas supply port of the instrument is 1/8 inch copper tubing;
  2. Customers will need to prepare for gas supply, distilled water and salt reagent.
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**Please Note:** Labthink is always dedicated to the innovation and improvement of product performance and function. Therefore, technical specifications are subject to change without further notice. Please visit our website at [www.labthink.com](http://www.labthink.com) for the latest updates. Labthink reserves the rights of final interpretation and revision.