

G2/131 is based on the differential pressure method, and is professionally applicable to the determination of gas transmission rate, solubility coefficient, diffusion coefficient and permeability coefficient of plastic films, composite films, high barrier materials, sheets, and aluminum foils at different temperatures. The system is equipped with three diffusion cells, which could test specimens simultaneously with individual test results. The testing process conforms to GB, ISO, ASTM and other international standards.



Professional

- System provides proportional and standard test modes with convenient parameter settings
- The gas transmission rate as well as the coefficients of permeability, solubility and diffusion can be obtained at one operation
- 3 distinct or identical specimens can be tested simultaneously with the individual test results
- Wide test range for different materials with high, medium and low barrier properties
- Various types of gases are testable: sole gas, mixed gases, poisonous gases, explosive gases and other dangerous gases (customization is required)
- World exclusive data fitting function that could easily calculate gas permeability and other parameters at different temperatures
- Top quality parts and components made by world famous brands are used to ensure reliable overall product performance
- Reference film for fast calibration ensures accurate and universal test data

High-end

G2/131 utilizes Labthink's latest embedded computer control system that provides a better performance than traditional single chip system.

- Patented integrated design of three test cells improves the test efficiency and reduces the space occupancy of the instrument
- Embedded computer control system provides safer and more reliable data management as well as test operation
- The instrument can be easily operated with a mouse, a keyboard, and a monitor, without requiring a PC
- The system is equipped with four USB ports and dual Internet ports for convenient data transmission

Intelligent

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

- Status monitoring and intelligent reminding of sensor calibration ensure instrument in the best working condition
- The system automatically calculates the statistical information of instrument utilization rate and test times
- Embedded help document for user viewing at any time
- Multi-level account control for better data management and protection
- The system utilizes embedded data saving technology to save detailed information and provide convenient and various searching and viewing functions
- One time value input and the system automatically gives data comparison after each test
- Supports Lystem™ Lab Data Sharing System for uniform and systematic data management

Test Principle

The pre-conditioned specimen is mounted in the gas diffusion cell as to form a sealed barrier between two chambers. The lower-pressure chamber is firstly evacuated, followed by the evacuation of the entire cell. A flow of gas is thereafter introduced into the evacuated higher-pressure chamber and a constant pressure difference is generated between the two chambers. The gas permeates through the specimen from higher pressure side into the lower side. The gas permeability and other barrier properties of the specimen can be obtained by monitoring the pressure changes in the lower chamber.

This test instrument conforms to the following standards:

ISO 2556, ISO 15105-1, GB/T 1038-2000, ASTM D1434, JIS K7126-1, YBB 00082003

Applications

This instrument is applicable to the determination of gas permeability of:

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|------------------------------|--|---|
| Basic Applications | 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 |
| Extended Applications | Various Gases | Test the permeability of various types of gases, e.g. O ₂ , CO ₂ , N ₂ , Air and He |
| | Inflammable, Explosive and Poisonous Gases | Test the permeability of inflammable, explosive and poisonous gases |
| | Biodegradable Films | Test gas permeability of various sorts of biodegradable films, e.g. starch-based biodegradable bags |
| | Materials for Aerospace Usage | This instrument can test the Helium permeability of airship gas bags |
| | Paper and Paper Board | Test gas permeability of paper and paper-plastic composite materials, e.g. aluminized paper for cigarette packages, Tetra Pak sheeting, paper bowls for instant noodles and disposable paper cups |
| | Paint Films | Test gas permeability of substrates coated paint films |
| | Glass Fiber Cloth and | Including glass fiber cloth and paper materials, e.g. Teflon paint cloth, |

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| Paper | Teflon welding cloth and Teflon silicon rubber cloth |
| Soft Tube Materials for Cosmetics | Including various types of cosmetic tubes, aluminum-plastic tubes and toothpaste tubes |
| Rubber Sheeting | Including various sorts of rubber sheeting, e.g. car tires |

Technical Specifications

| Specifications | Film Test |
|-------------------------------|---|
| Test Range | 0.05 ~ 50,000 cm ³ /m ² ·24h·0.1MPa |
| Temperature Range | 15°C~ 55°C (room temperature 23°C) |
| Temperature Accuracy | ±0.1°C (standard) |
| Humidity Range | 0%RH, 2% ~ 98.5%RH, 100%RH (humidity generator is optional) |
| Humidity Accuracy | ±1%RH |
| Vacuum Resolution | 0.1 Pa |
| Vacuum Degree of Test Chamber | < 20 Pa |
| Number of Specimens | 3 with independent test results |
| Specimen Size | Φ97 mm |
| Test Area | 38.48 cm ² |
| Test Gas | O ₂ , N ₂ , and CO ₂ (outside of supply scope) |
| Test Pressure | -0.1 MPa ~ +0.1 MPa |
| Gas Supply Pressure | 0.4 MPa ~ 0.6 MPa |
| Port Size | Φ6 mm PU Tubing |
| Instrument Dimension | 690 mm (L) x 350 mm (W) x 360 mm (H) |
| Power Supply | 220VAC 50Hz / 120VAC 60Hz |
| Net Weight | 71 kg |

Configurations

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| Standard Configurations | Instrument, Professional Software, LCD Monitor, Keyboard, Mouse, Round Sample Cutter, Vacuum Grease, Fast Quantitative Filter Paper and Vacuum Pump |
| Optional Parts | Blades for Sample Cutter, Vacuum Grease, Vacuum Pump Oil, Fast Quantitative Filter Paper, Humidity Generator, Lystem™ Lab Data Sharing System and Printer (compatible with PCL3) |
| Note | 1. The gas supply port of the instrument is Φ6 mm PU tubing; 2. Customers will need to prepare for gas supply. |

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