VAC-V2 (EX)-H Gas Permeability Tester is based on the differential pressure method, and is professionally applicable to the determination of gas transmission rate of common gases as well as toxic, flammable or explosive gases. It is suitable for the determination of gas transmission rate, solubility coefficient, diffusion coefficient and permeability coefficient of plastic films, composite films, high barrier materials, sheeting, and aluminum foils at varied temperatures.



Professional Technology

- Labthink advanced split control system is applied to realize complete separation of the tester mainframe and its control module so as to ensure testing safety.
- The tester is suitable for gas permeability determination of flammable, explosive or toxic gases.
- The tester can perform permeability tests in normal pressure and high pressure conditions.
- The tester has passed TUV safety certification.
- Three independent test cells can test three identical or different samples simultaneously.
- Gas transmission rate, permeability coefficient, solubility coefficient and diffusion coefficient are determined simultaneously.
- Wide-range & high-precision liquid circulation temperature controller can satisfy tests under varied test conditions.
- Dual testing process judgment patterns are available: Proportional Mode and Fuzzy Mode.
- Data fitting at any temperatures can be realized; test results under extreme conditions can be obtained easily.
- PC controlled, and the whole test process can be accomplished automatically.
- Reference film is available for rapid calibration to ensure the accuracy and versatility of the test data.
- RS232 universal data port is equipped to facilitate data transfer.
- The tester is compatible with Lystem™ Laboratory Data Sharing System with unified management of test results and test reports.

Test Principle

VAC-V2(EX)-H Gas Permeability Tester is designed based on the differential-pressure method. The pre-conditioned sample is mounted in between the upper testing chamber and lower testing chamber and clamped. First, the lower-pressure chamber (i.e., lower testing chamber) is evacuated, followed by the evacuation of the entire system. When the desired vacuum degree has been achieved, close the lower testing chamber and test gas of a certain pressure is flushed to the higher pressure chamber (upper testing chamber), and a constant pressure difference (adjustable) is formed between the two testing chambers. The gas permeates through the sample from the high pressure side into the low pressure side due to pressure gradient. The gas permeability parameters of the sample can be obtained by monitoring the pressure changes in the lower testing chamber.

The tester conforms to a variety of national and international standards: ISO 15105-1, ISO 2556, GB/T 1038-2000, ASTM D1434, JIS K7126-1, and YBB 00082003.

Test Applications

Basic Applications	**Films**	It is applicable to gas permeability tests of all kinds of plastic films, plastic composite films, paper-plastic composite films, coextrusion films, aluminum foils, aluminum foil composite films and other film materials.
	Sheeting	It is applicable to gas permeability tests of a variety of engineering plastics, rubber, building materials and other sheeting materials, such as PP sheeting, PVC sheeting, PVDC sheeting, etc
Extended Applications	Varied Gases	It is applicable to the peremability test of a variety of gases, such as O_2, CO_2, N_2, air and He, etc.
	Flammable & Explosive Gases	It is applicable to the film barrier performance tests of flammable or explosive gases
	Bio-degradation	It is applicable to gas permeability tests of biodegradablefilms, such as starch biodegradable pouches and so on.

Films	
Materials for Aerospace Use	It is suitable for gas permeability tests of aerospace materials, such as helium transmission rate test of airship airbags.
Paper & Cardboard	It is applicable to the gas permeability tests of paper and paper-plastic composite materials, such as aluminum foils for cigarette packaging, Tetra Pak packaging sheeting, paper bowls for instant noodles, and disposable paper cups, etc
Paint Film	It is applicable to the gas permeability tests of paint coating on substrates.
Glass Fiber Cloth & Glass Fiber Paper, etc.	It is applicable to the gas permeability tests of glass fiber cloth, glass fiber paper and other materials, such as Teflon lacquer cloth, Teflon high temperature cloth, fluorine silicone cloth, etc.
Sheeting for Cosmetic Tubes	It is applicable to gas permeability tests of all kinds of sheeting materials for cosmetics tubes, aluminum plastic tubes, toothpaste tubes, etc.
Rubber Sheeting	It is applicable to gas permeability tests for all kinds of rubber sheeting, such as gas permeability tests of automobile tires.

Technical Specifications

Item	Film Test
Test Ranges	0.05 to 50,000 $cm^3/m^2 \cdot 24h \cdot 0.1MPa$ (Normal Pressure)
	0.05 to 1,000 $cm^3/m^2 \cdot 24h \cdot 0.1MPa$ (High Pressure)
Number of Samples	3 pieces (with respective data)
Vacuum Resolution	0.1 Pa
Test Cell Vacuum	≤10 Pa

Degree	
Temp. Control Range	5℃～95℃
Temp. Fluctuation	±0.1℃
Sample Size	Φ50 mm
Test Area	5 cm^2
Test Gases	H_2, N_2, O_2, CO_2, etc. (Gas sources are to be provided by users)
Test Pressure	100 kPa ~ 3000 kPa
Gas Source Pressure	0.5 MPa～0.6 MPa
Port Size	1/8" Metal Tube
Dimensions	760 mm (L) × 575 mm (W) × 450 mm (H)
Power Supply	AC 220V 50Hz
Net Weight	88 kg

✧ For users with special needs, our company can conduct customized production for users within the scope of our capacity to meet their needs.

Product Configuration

Standard Configuration	mainframe, thermostat controller, professional software, special sampler, vacuum grease, fast quantitative filter paper, vacuum pump (inlet)
Optional Parts	Sampling blade, vacuum grease, vacuum pump oil, rapid quantitative filter paper
Note	The air source inlet of the tester is a 1/8" metal pipe; the gas sources are to be provided by the users.

✧ Labthink is always dedicated to the innovation and improvement of product performance and function. Therefore, technical specifications are subject to change without further notice. Labthink reserves the rights of revision and final interpretation.