

# N500 2.0 Gas Permeability Testing -Differential Pressure Method

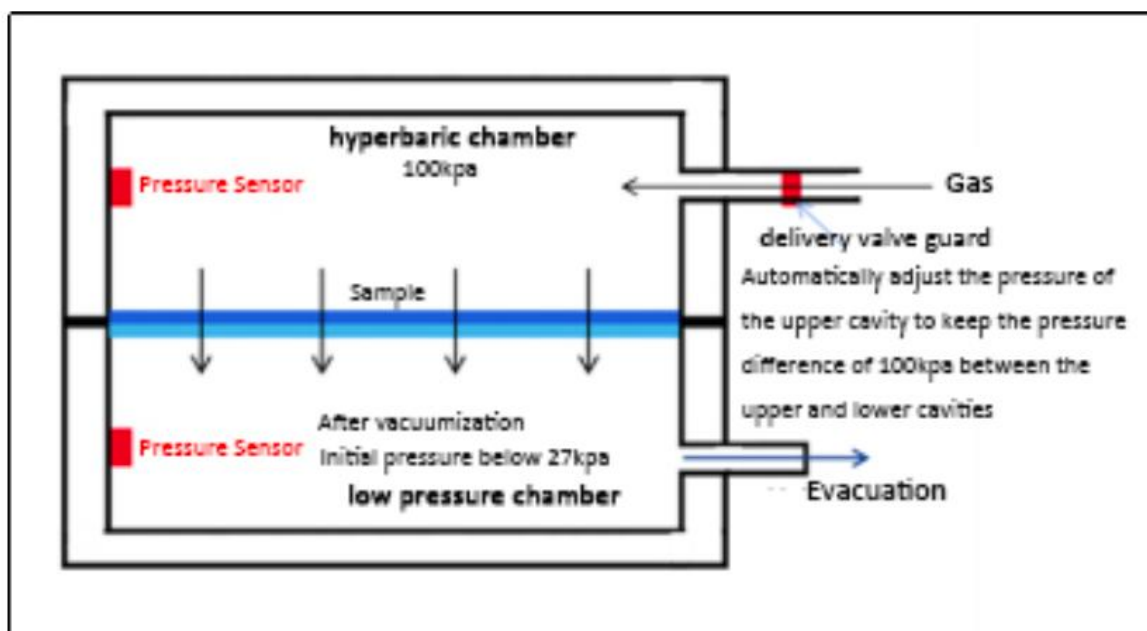


## Product Introduction

This product is based on the test principle of the differential pressure method, and is designed and manufactured with reference to ASTM D1434, ISO 2556 and other standards. With high-precision pressure sensor and automatic differential pressure maintaining technology, this machine has high test accuracy. It is suitable for the gas permeability test of films, sheets, paper, packaging and related materials in food, medicine, medical equipment, daily chemicals, photovoltaic electronics and other industries. It can be used to test high, medium and low gas barrier materials with outstanding efficiency.

## Test Principle

The N500 gas permeability tester adopts the principle of differential pressure method. Place the processed sample between the upper and lower chambers, use a vacuum pump to evacuate the entire gas circuit system, and then add an atmospheric pressure experimental gas to the upper chamber to form a constant pressure difference between the upper and lower chambers. Due to the pressure difference, the gas permeates from the upper cavity to the lower cavity through the film, and the system can calculate the barrier performance such as the gas permeability of the sample through the pressure change of the lower cavity.



Schematic diagram of differential pressure method



## Standard

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

## Technical Specifications

Items	Technical parameter
Test range	0.01~50000 cm <sup>3</sup> /(m <sup>2</sup> ·24 h·0.1 MPa) The upper limit that can be tested after expanding the volume is 600000 cm <sup>3</sup> /(m <sup>2</sup> ·24h·0.1MPa)
Resolution	0.001 cm <sup>3</sup> /(m <sup>2</sup> ·24 h·0.1 MPa)
Temperature control range	15~60°C
Temperature control accuracy	±0.1°C
Degree of vacuum	< 10 Pa
Vacuum resolution	0.01 Pa
Test pressure	0.1 MPa
test gas	O <sub>2</sub> 、CO <sub>2</sub> 、N <sub>2</sub> etc.
Test area	50.24 cm <sup>2</sup>
Sample size	Φ110 mm
Specimen thickness	≤2 mm
Number of samples	1 piece
Power	450 W
Power supply	AC 220 V, 50 Hz

## Product Features

### Patented core technology, efficient and accurate testing

1) The patented automatic differential pressure maintaining technology automatically maintains the pressure difference between the two sides of the sample (the differential pressure maintaining pressure can be adjusted arbitrarily), with a built-in high-precision



pressure sensor with a resolution of 0.01 Pa, good stability and low failure rate

- 2) Water-cooled temperature control technology, imported original temperature sensor, automatically adjust the test temperature, the temperature is accurate to 0.1 °C.
- 3) The original imported vacuum pump, the ultimate pressure can reach 0.1 Pa, the vacuum pumping efficiency is high, and the noise is low.

### **Meet the test requirements of wide range and high applicability**

- 1) The instrument is equipped with a single cavity, with a measurement accuracy of 0.001 cm<sup>3</sup>/(m<sup>2</sup>·24 h·0.1 MPa).
- 2) The measurement range is 0.02~50000 cm<sup>3</sup>/(m<sup>2</sup>·24 h·0.1 MPa), and the measurement range is wide, which can meet the testing requirements of high, medium and low barrier materials.
- 3) With the addition of matching accessories, it can measure the gas permeation of bottles, bags, bowls and other packaging. At the same time, it supports the permeability test of different gases such as oxygen, carbon dioxide, nitrogen, and air.

### **Excellent appearance, convenient control, real-time visualization of curves**

- 1) The products are artistically designed from the perspective of ergonomics and technical aesthetics, with exquisite 3D printed shells, smooth lines, fashionable and beautiful, novel and unique.
- 2) Fully automatic operation, one-key test, automatic judgment, automatic shutdown.
- 3) Real-time display of five sets of curves of transmittance-time, temperature-time, upper chamber pressure-time, lower chamber pressure-time, differential pressure change-time, and the curve supports preview and hide function.

### **Offline or online test**

The instrument has its own operating system, which can test samples independently without connecting to a computer, and the data is processed automatically. The instrument is equipped with a computer interface, and can also be connected to a computer for online testing.



### **Smart operating system, recognized globally**

- 1) Smart operating system, global certification
- 2) Self-developed intelligent operating system, modular icons, fashionable color matching, user-friendly settings, intuitive and convenient operation.
- 3) According to GMP appendix computer system design, test process parameters can be set flexibly to meet different standard requirements.
- 4) It has the function of audit trail (log tracking, test tracking), which can meet the needs of data traceability. System operation authority can be set to different levels.
- 5) Intelligent statistical analysis, support for standard deviation analysis of multiple data. At the same time, the system can be expanded, such as access to laboratory LIMS system.
- 6) Personalized test reports can be set as needed, and data output forms in multiple formats are supported.
- 7) Global strength certification, Chinese and English settings can be performed as needed.

### **Professional calibration service, accurate and reliable data**

GBPI has gas transmission rate "National Standard Material Grading Certificate" and "People's Republic of China Manufacturing Measuring Instrument License", the standard number (GBW (GBW ( E) 130541 / GBW(E) 130542) that approved and issued by the "General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China":

National standard materials are adopted to calibrate and verify the instrument to ensure the accuracy, versatility and authority of the test data.







### **Laboratory Intelligent IoT Platform**


- 1) The instrument can be connected to the IoT platform to realize network digital management.
- 2) Log in to the IoT platform remotely and authorize to enter the instrument software interface, which can realize functions such as managing experimental data, remote diagnosis and troubleshooting.



3) Customers can download the required instrument information, documents, and operation videos on the platform by themselves.

**Application**

	<p>Film</p>	<p>Gas permeability test of film materials such as plastic films (PP/PET/PE/PVC/BOPP/PP, etc.), plastic composite films, paper-plastic composite films, metal composite films, co-extruded films, aluminized films, and degradable packaging films etc.</p>
	<p>Sheet</p>	<p>Gas permeability test of solid pharmaceutical hard sheet (PP/PVC/PTP, etc.), metal composite sheet, rubber sheet and other sheet materials</p>
	<p>Paper and cardboard</p>	<p>Gas permeability test of paper and cardboard such as coated paper, carbon paper, silicone paper, aluminized paper, paper-aluminum-plastic composite sheet, etc.</p>
	<p>Medicinal stickers, warm stickers</p>	<p>Gas permeability test of medical plaster treatment patch, warm patch, dysmenorrhea patch and other patches</p>
	<p>Hygiene products</p>	<p>Gas permeability test for sanitary napkins, pads and other sanitary products</p>
	<p>Package</p>	<p>Wine bottles, cola bottles, peanut oil barrels, Tetra Pak packaging, vacuum packaging bags, three-piece cans, cosmetic packaging, toothpaste tubes, jelly cups, yogurt cups and other plastic, rubber, paper, paper-plastic composite, glass, metal bottles, gas permeability test of bags, cans, boxes, barrels.</p>

	<p>Various gases</p>	<p>Suitable for permeability testing of various gases, such as oxygen, carbon dioxide, nitrogen, air, helium, etc.</p>
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**Factory configuration**

<p>General Configuration</p>	<p>Power cord, communication line, special wrench, sampler, rubber hose, 1/8 tracheal connector; 1/4 tracheal connector, sealing grease, qualitative filter paper, Phillips screwdriver, standard membrane, threaded connector, sealing ring, mouse.</p>
<p>Optional</p>	<p>Computer, measurement certificate, air compressor, vacuum pump</p>
<p>User-provided</p>	<ol style="list-style-type: none"> <li>1. Laboratory requirements: general laboratory;</li> <li>2. Power requirements: one 220V three-hole three-position switch socket, 10A;</li> <li>3. Computer requirements: standard configuration (Windows10, with a nine-pin serial port.);</li> <li>4. Experimenter requirements: 1-3 test operators, technical secondary school or above, certain computer knowledge;</li> <li>5. Drying dish (all samples need to be dehydrated and degassed for 24 hours);</li> <li>6. Other accessories: used for calibration: a bottle of oxygen (purity 99.999% or more), other gases are customized.</li> </ol>

Note: Guangzhou Biaoji has always been committed to the innovation and improvement of product performance and function. For this reason, product technical specifications and appearance will be changed accordingly. The above situation will not be notified. The company reserves the right of modification and final interpretation.







## Our service commitment

- 1) Provide free packaging testing technical support.
- 2) One-year warranty, free software upgrade, and lifetime free technical support.
- 3) Free training of instrument operation, and those who pass will be issued a graduation certificate, and free board and lodging will be provided.
- 4) Instrument “trade-in” policy and provision of backup instruments in case of failure.
- 5) There is a testing center (CNAS L8185) to provide sample testing and sample data comparison services.
- 6) We have reference material research and development center to provide calibration

services.

## Company Profile

Guangzhou Biaoji Packaging Equipment Co., Ltd., located in Guangzhou Economic Development Zone, was established in 2002. We are a company integrating R&D, production and sales of packaging testing instruments, packaging equipment, modified atmosphere preservation equipment and other products, as well as providing third-party testing and standard material proficiency testing. We are committed to providing comprehensive, professional and high-quality products and technical services for packaging, food, medicine, testing and other industries.

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