

# Labthink®



**Excellent Supplier of Packaging Testing  
Instruments and Services**



Labthink Instruments Co., Ltd.

## FEATURED PRODUCTS

# C403H

## Oxygen/Water Vapor Transmission Rate Test System

### Machine Specifications

- It is designed and manufactured according to ASTM D3985, ASTM F1249, ISO 15106-2 and other relevant standards to provide high precision and high efficiency oxygen and water vapor transmission rate tests for high and medium barrier materials.
- OTR / WVTR mode, OTR mode and WVTR mode are available for selection.
- Using 360 ° air circulation constant temperature technology, the temperature stability is better.
- Automatic control of flow, temperature and relative humidity, the accuracy is higher.
- Automatic sample clamping, saving time and effort, ensuring consistent clamping force and better sealing.
- 12" touch-screen tablet powered by Windows operating system makes the operation simpler and more convenient.



Parameter \ Model	OTR	WVTR
Test Range	0.01 ~ 200cc / (m <sup>2</sup> ·day) (standard area 50cm <sup>2</sup> ) 0.2 ~ 2000cc / (m <sup>2</sup> ·day) (MASK area 5cm <sup>2</sup> )(Optional) 1 ~ 10000cc / (m <sup>2</sup> ·day) (MASK area 1cm <sup>2</sup> )(Optional)	0.005 ~ 40g / (m <sup>2</sup> ·day) (standard area 50cm <sup>2</sup> ) 0.2 ~ 400g / (m <sup>2</sup> ·day) (MASK area 5cm <sup>2</sup> )(Optional) 1 ~ 2000g / (m <sup>2</sup> ·day) (MASK area 1cm <sup>2</sup> )(Optional)
Resolution	0.0001cc / (m <sup>2</sup> ·day)	0.0001 g / (m <sup>2</sup> ·day)
Humidity range	0%, 5 - 90%±2% RH	
Test Temperature	15 ~ 50 / 5~60(Customized);±0.05 C	
Number of Specimens	3 test chambers	

## Oxygen/Water Vapor Transmission Rate Test System

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Parameter \ Model	OTR	WVTR
Test Range	0.02~ 200cc / (m <sup>2</sup> ·day) (standard area 50cm <sup>2</sup> ) 0.2 ~ 2000cc / (m <sup>2</sup> ·day) (MASK area 5cm <sup>2</sup> )(Optional) 1 ~ 10000cc / (m <sup>2</sup> ·day) (MASK area 1cm <sup>2</sup> )(Optional)	0.02 ~ 40g / (m <sup>2</sup> ·day) (standard area 50cm <sup>2</sup> ) 0.2 ~ 400g / (m <sup>2</sup> ·day) (MASK area 5cm <sup>2</sup> )(Optional) 1 ~ 2000g / (m <sup>2</sup> ·day) (MASK area 1cm <sup>2</sup> )(Optional)
Resolution	0.0001cc / (m <sup>2</sup> ·day)	0.0001 g / (m <sup>2</sup> ·day)
Humidity range	0%, 5 - 90%±2%,100% RH	
Test Temperature	15 ~ 50 / 5~60(Customized);±0.15 C	
Number of Specimens	6 test chambers	

## 1 Gas Permeability


### A Oxygen Transmission Rate Test System

This series of instruments can be used to measure the oxygen transmission rate of barrier materials with high and medium barrier properties with high accuracy and high efficiency. They are applicable to the determination of oxygen permeability of plastic films, sheeting, paper, and other packaging materials used in food, pharmaceutical, medical apparatus, consumer products, photovoltaic and electronic industries, etc. Optional accessories extend the capability to testing complete packages and systems such as bottles, pouches, cartons, blister packs, tubes and more.

Items	Model	C206H	C203H	C230H	C201H
Test Range	cc/(m <sup>2</sup> ·day)	0.02~200	0.01~200	0.01~ 200	0.01~200 / 0.2~2000(optional)
	cc/(100in <sup>2</sup> ·day)	/	/	0.0007~ 12.9	/
	cc/(pkg·day) (Package)	0.0001~1	0.00005~1	0.00005~ 1	0.00005 ~ 1
Resolution	cc/(m <sup>2</sup> ·day)	0.0001	0.0001	0.001	0.0001
Repeatability	cc/(m <sup>2</sup> ·day)	0.02 or 1% (whichever the greater)	0.01 or 1%, whichever is greater	0.01 or 2% (whichever the greater)	0.01 or 1% (whichever the greater)
Test Temperature	°C	15~50±0.15, 5~60 (Optional)	15~50±0.05, 5~60 (customized)	10~55 ±0.2	15~50 ±0.2 (Optional)
Test Humidity	RH	0%, 5~90%±2%	O <sub>2</sub> : 0%, 5~90%±1% Carrier Gas: 0%, 5~90%±2%	O <sub>2</sub> : 0%, 5~90%±1% Carrier Gas: 0%, 5~90%±2%(Optional)	0%, 35~90%±2% (Standard) 100% (Optional)
Photos					

### B Differential Pressure Method


This series of instruments can be used to measure the gas transmission rate, solubility coefficient, diffusion coefficient and permeability coefficient of plastic films, composite films, high-barrier materials, sheeting, foils and permeable membranes at various temperatures.

Model	C106H	C130H	VAC-V2	C101H
Scope of application	films, sheeting	films, sheeting	films, sheeting	films, sheeting
Numbers of Test Cells	6 with independent test results	3 with independent test results Customization available for other number of specimens	3 with independent test results	1 with independent test results
Test Range (cm <sup>2</sup> /m <sup>2</sup> ·24h·0.1MPa)	0.01~50,000	0.01~50,000	0.05~50,000 (standard volume) At least 500,000 (extended volume)	0.01~50,000 (Standard) 0.01~500,000 (Optional)
Temperature Range	15°C~ 50°C, 5°C~60°C (Optional)	10°C~ 50°C (room temperature 23°C)	5°C~ 95°C (room temperature 23°C)	15°C~ 50°C
Temperature Fluctuation	±0.15°C	±0.05°C	±0.1°C	±0.2°C
Vacuum Resolution	0.01 Pa	0.01 Pa	0.1 Pa	0.05 Pa
Vacuum Degree of Test Chamber	≤ 10 Pa	<10 Pa	<20 Pa	< 10 Pa
Test Humidity	0%, 5~90%±2% (Customized)	Humidifying of Test Gas (customization available)	0%RH, 5%RH ~ 95%RH (humidity generator is optional)	/
Photos				

## 2 Water Vapor Permeability

This series of instruments can be used to measure water vapor transmission rate of plastic films, plastic composite films, paper-plastic films, coextruded films, aluminized films, aluminum foils, aluminum-foil composite films, glass fiber with aluminum foil composite films and many others. They are also available for the test of engineering plastics, rubber, building materials, as well as bottles, pouches, cans, boxes and buckets made from plastics, rubber, paper, paper-plastic, glass and metal.


## A Infrared Sensor

Items	Model	C306H	C303H	C390H	C301H
Test Range	g/(m <sup>2</sup> ·d) (Standard)	0.02~40	0.005~40(standard), 0.005~100(optional)	0.005 ~ 40(standard),0.005 ~ 100(optional)	0.005 ~ 50
	g/(pkg · d) (Package)	0.0001~0.2	0.00002~0.2	0.000025 ~ 0.2	0.00002~0.25
Resolution	g/(m <sup>2</sup> ·d)	0.0001	0.0001	0.0001	0.0001
Repeatability	g/(m <sup>2</sup> ·d)	0.02 or 2% (whichever is greater)	0.005 or 2% (whichever is greater)	0.005 or 2% (whichever is greater)	0.005 or 2% (whichever is greater)
Test Temperature	℃	15~50 , 5~60 (Optional)	15~50, 5~ 60 (customized)	10 ~ 55 ±0.2	15 ~ 50 ±0.2
Test Humidity	RH	100%, 5~90%±2%	5~90%±1%	5% ~ 90% ±1%, 100%	0%, 35~90%±2% (Standard) 100% (Optional)
Photos					

## B Gravimetric Method (Cup Method)







Items	Model	C360M	C360H	W3/031
Testing Efficiency	0.01g/(m <sup>2</sup> ·day)~0.5g/(m <sup>2</sup> ·day)	>24 hours	>24 hours	Accuracy 0.01 g/m <sup>2</sup> ·24h
	0.5g/(m <sup>2</sup> ·day)~5g/(m <sup>2</sup> ·day)	12~24 hours	12~24 hours	
	>5g/(m <sup>2</sup> ·day)	≤8 hours	≤12 hours	Resolution 0.0001 g
Max. Test Range	Water Method	10000/n (1-6) g / (m <sup>2</sup> ·day)	10000/n (1-12) g / (m <sup>2</sup> ·day)	0.1 ~ 10,000 g/m <sup>2</sup> ·24h (standard)
		645/n (1-6) g / (100in <sup>2</sup> ·day)	645/n (1-12) g / (100in <sup>2</sup> ·day)	
	Desiccant Method	1200g / (m <sup>2</sup> ·day) per piece	1200g / (m <sup>2</sup> ·day) per piece	/
Test Station		6	12	1~3 with independent test results
Test Temperature	℃	20~55±0.2	20~55±0.2	15℃~55℃±0.1℃ (standard)
Test Humidity	RH	10%~90%±1%	10%~90%±1%	10%~98%±1%
Photos				

## C Electrolytic Sensor

Items	Model	C330H
Test Range	g/(m <sup>2</sup> ·d) (Standard)	0.005 ~ 50
	g/(pkg · d) (Package)	0.000025 ~ 0.25
Resolution	g/(m <sup>2</sup> ·d)	0.001
Repeatability	g/(m <sup>2</sup> ·d)	0.005 or 2%, whichever is greater
Test Temperature	℃	10 ~ 55 ±0.2
Test Humidity	RH	5% ~ 90% ±1%, 100%
Photos		




## 3 Tensile Strength

This series of instruments can be used for the determination of physical and mechanical properties of plastic films, composite materials, adhesives, adhesive tapes, release paper, protective films, flip off caps, foils, rubber, paper fiber, etc.

Model	PARAM <sup>®</sup> i-Stretek 1510	CG10M	CG10H	PARAM <sup>®</sup> XLW(PC)	PARAM <sup>®</sup> XLW	PARAM <sup>®</sup> MED-01
Load Cell Capacity	500N (Standard) 50N, 100N, 250N, 1000N, 2000N, 5000N, 10000N (Optional)	500 N (standard) 50 N, 100 N, 250 N, 1000 N (optional) 5N (Customization available)	500 N (standard) 50 N, 100 N, 250 N, 1000 N (optional)	500 N (standard) 50 N, 100 N, 250 N (optional)	500 N (standard) 30 N, 50 N, 100 N, 200 N (optional)	250 N (standard) 50 N, 100 N, 500 N (optional)
Accuracy	1% FS	±0.5% of indicated value	±0.5% of indicated value (2%FS~100%FS) ±0.01%FS (0% ~ 2%FS)	0.5% FS	1% FS	Better than 0.5% FS
Number of Specimens	1	1	1	1	1	1
Test Speed	1~500 mm/min	0~500 mm/min	0.05~500 mm/min	50, 100, 150, 200, 250, 300, 500 mm/min		Forward:10/50/100/150/200/300 mm/min Backward:10/50/100/150/200/300 mm/min
Stroke	800 mm	950 mm (customization available for 1200mm)	1000 mm	1000 mm	600 mm	600 mm
Photos						

## 4 Coefficient of Friction Tester




Coefficient of Friction Testers are professionally applicable to the determination of the static and kinetic coefficient of friction for plastic films, sheets, rubber, paper and paper board, PP woven bags, fabrics, metal-plastic composite belts for communication cables, convey belts, wood, coating, brake pads, windshield wipers, shoe materials and tyres. C620H is also available for peel strength test of adhesive laminated products, medical adhesive bandage, release paper, protective films, etc.

Items	Model	C620H	PARAM <sup>®</sup> MXD-02	PARAM <sup>®</sup> COF-P01
Test Range		0 ~ 5 N (standard); 0~10 N, 0~30 N, 0~50N, 0~100N (optional)	0 ~ 5 N	Angle Range 0° ~ 85°
Accuracy		Displayed Value ±0.5% (10%FS-100%FS) ±0.05%FS (0%-10% of the load cell range)	0.5%FS	Accuracy 0.01°
Stroke		10 ~ 300 mm	70 mm, 150 mm	Angular Velocity 0.1°/s~10.0°/s
Sled		Weight: 200g; Size: 63.5mmx63.5mm Customization is available	200 g (Standard) Sled of specific weight could be customized	1300g (standard) ;235g (optional); 200g (optional) Customization is available for other masses
Test Speed		0 ~ 500 mm/min (Any integer within this range can be set)	100 mm/min, 150 mm/min	/
Test Temperature		Room Temperature ~ 100 °C	/	/
Photos				

## 5 Heat Seal and Hot Tack




Heat Seal Testers can be used to determine the heat seal temperature, pressure, and dwell time for plastic films, plastic composite films, paper-plastic composite films, coextruded films, aluminized films, aluminum foils, and aluminum-foil composite films. Heat sealing surface can be customized as customer required.

Hot Tack Testers are professionally designed for Hot tack and heat seal performance tests for plastic films, laminated films and other packaging films. Meanwhile, it can be used to test the peeling and tensile properties of adhesives, adhesive tapes, laminated films, plastic films, paper and other flexible materials.

Items	Model	C630H	PARAM <sup>®</sup> HST-H3	C632M
Sealing Temperature		Room temperature ~ 300°C	Room temperature ~ 250°C	Room temperature ~ 250°C
Temperature Fluctuation		±0.2 °C	±0.2 °C	±0.2 °C
Temperature Gradient		< 20 °C	N/A	N/A
Dwell Time		0.1 ~ 999.99 s	0.5 ~ 999.9 s	0.1 ~ 999.9 s
Sealing Pressure		0.1Mpa ~ 0.7 Mpa (14psi ~ 101psi)	0.05Mpa ~ 0.7 Mpa	0.05Mpa ~ 0.7 Mpa
Sealing Area		40 mm x 10 mm	330 mm x 10 mm (customization available)	100 mm x 10 mm
Heating Mode		Single heating surface or double heating surfaces	Single heating surface or double heating surfaces	Single heating surface or double heating surfaces
Load Cell Capacity		/	/	50 N
Force Accuracy		/	/	1500- 2000~12000 mm/min
Delay time		/	/	0.01~ 999.99
Photos				


## 6 Leak and Seal Strength Detector

Leak and Seal Strength Tester is professionally designed for the leakage tests of packages for food, drugs, medical instruments, household chemical products, cars, electronic components, stationeries and other industrial products. The instrument also can be used to test seal performance of specimens after falling and compression tests.

Items	Model	C660B	PARAM <sup>®</sup> MFY-01	Items	Model	C660M
Vacuum Degree		0 ~ -90KPa / 0 ~ -13 psi	0 ~ -90KPa	Test Range		0 ~ 600 KPa; 0 ~ 87.0 psi (standard) 0 ~ 1.6 MPa; 0 ~ 232.1 psi (optional)
Accuracy		±0.25% FS	1% FS	Resolution		0.1 KPa / 0.01 psi
Vacuum Chamber Effective Sizes		Φ270 mm x 210 mm (H) (standard) Φ360 mm x 585 mm (H) (optional) Φ460 mm x 330 mm (H) (optional) Note: customization is available for other sizes	Φ270 mm x 210 mm (H) (standard) Φ360 mm x 585 mm (H) (optional) Φ460 mm x 330 mm (H) (optional) Note: customization is available for other sizes	Pressure Accuracy		±0.25% FS
Gas Supply Pressure		0.5 MPa ~ 0.7 Mpa (73psi ~ 101psi)	0.7 MPa (outside of supply scope)	Pressure Accuracy		0.1s ~ 999999.9 s
Photos				Photos		

## 7 Falling Dart Impact Tester

The instruments are designed for the determination of the impact mass and energy that cause 50% plastic films or sheet samples failure under certain impacting conditions.

Items	Model	PARAM <sup>®</sup> BMC-BI	C670M	Photos
Test Method		Method A or Method B is optional		
Test Range		Method A:50~2000 g ; Method B:300~2000 g		
Weight Accuracy		+0.5%		


## 8 Thickness Tester

Thickness Testers utilize contacting method to provide accurate and precise thickness measurements for plastic films, sheets, paper, foils, silicon wafers and other materials.

Items	Model	C640M	C640H	PARAM <sup>®</sup> CHY-C2A
Test Range (Standard)		0 ~ 2 mm (Standard); 0~6, 0~12 (Optional)	0 ~ 2 mm (Standard); 0~6, 0~12 (Optional)	0 ~ 2 mm (Standard); 0~6, 12 (Optional)
Resolution		0.1 $\mu$ m	0.1 $\mu$ m	0.1 $\mu$ m
Repeatability <sup>Note3</sup>		0.8 $\mu$ m	0.4 $\mu$ m	N/A
Test Pressure		Film: 17.5 $\pm$ 1 KPa, Paper: 100 $\pm$ 1 KPa (Standard)/50 $\pm$ 1kPa (Optional),	Film: 17.5 $\pm$ 1 KPa, Paper: 100 $\pm$ 1 KPa (Standard)/50 $\pm$ 1kPa (Optional),	Film: 17.5 $\pm$ 1 KPa, Paper: 50 $\pm$ 1kPa (Optional),
Contact Area		Film: 50 mm <sup>2</sup> Paper: 200 mm <sup>2</sup>	Film: 50 mm <sup>2</sup> Paper: 200 mm <sup>2</sup>	50 mm <sup>2</sup> (Film);200 mm <sup>2</sup> (Paper) Note: Select one pressure foot for film or paper; customization is available.
Feeding Speed		1.5 ~ 80 mm/s (Adjustable)	1.5 ~ 80 mm/s (Adjustable)	/
Photos				




## 9 Tearing Tester

C680M Tearing Tester is designed for the tearing test of films, sheets, flexible PVC, PVDC, waterproof films, woven materials, polypropylene, polyester, paper, cardboard, textiles and nonwovens.

Items	Model	C680M	
Pendulum Capacity		200gf, 400gf, 800gf, 1600gf, 3200gf, 6400gf	
Air Source Pressure		0.6 MPa (supplied by user)	
Net Weight of Mainframe		40kg (200gf basic pendulum)	

## 10 Headspace Gas Analyzer



Headspace Gas Analyzer is equipped with professional structural and high precision sensors. It can provide accurate and fast evaluation of the volume of oxygen and carbon dioxide (with optional accessories) in sealed packages, bottles, cans, etc. Because of its portable design, the instrument can be used to measure the volume and proportion of oxygen and carbon dioxide on production lines, at warehouses or in laboratories, to serve as a guide for production.

Items	Model	C650H		C650B		C650M	
Testable Gases		O <sub>2</sub> (Standard)	CO <sub>2</sub> (optional)	O <sub>2</sub> (Standard) Electrochemistry	CO <sub>2</sub> (optional) Infrared Absorption	O <sub>2</sub> (Standard) Electrochemistry	CO <sub>2</sub> (optional) Infrared Absorption
Test Range		0.2% ~ 21%	2% ~ 100%	0 ~ 100%	0 ~ 100%	0 ~ 100%	0 ~ 100%
Test Accuracy		$\pm$ 0.2%	$\pm$ 2%	$\pm$ 0.3%	$\pm$ (0.03% + displayed value * 5%)	$\pm$ 0.2%	$\pm$ (0.03% + displayed value * 5%)
Sampling Volume		$\geq$ 5 mL (Standard Atmospheric Pressure)	$\geq$ 20 mL (Standard Atmospheric Pressure)	6 ~ 8 mL (Standard Mode)	15 mL (Standard Mode)	<2 mL (Standard Mode)	15 mL (Standard Mode)
Photos							

## 11 Heating Shrinkage Tester

C631H Thermal Shrinkage Tester is designed and developed in accordance with ISO 14616 and GB/T 34848, for determination of shrinking force, contracting force and shrinkage ratio of heatshrinkable films. Shrinking force greater than 0.01N can be detected.

RSY-R2 Film Free Shrink Tester is professionally applicable to the determination of heating shrinking performance and dimensional stability of various films, heatshrinkable tubes, hard PVC films for tablets, and backsheets in fluid medium at different temperatures.

Items	Model	C631H	PARAM <sup>®</sup> RSY-R2		
Load Cell Capacity		5 N (Standard) ;10 N, 30 N (Optional)	/		
Displacement Range		0.1 ~ 95 mm	/		
Temperature Range		Room Temperature ~ 210 C	Room temperature ~ 200°C		
Temperature Accuracy		$\pm$ 0.5 C (Single Point Calibration)	$\pm$ 0.3°C		
Number of Stations		1 Group (2 pcs)	/		
Specimen Size		110 mm x 15 mm (Standard)	< 140 mm x 140 mm		

## 12 Lasting Adhesive Tester & Primary Adhesive Tester

Lasting Adhesive Tester can be used to test the holding power of pressure-sensitive tapes, pressure-sensitive labels and protective films, etc.

Primary Adhesive Tester is designed based on the balling method, and the primary adhesive property of adhesive tapes could be obtained by observing adhesive effect occurred immediately after rolling ball and adhesive specimen come into contact.

Items	Model	PARAM <sup>®</sup> CZY-85A		Items	Model	PARAM <sup>®</sup> CZY-G	
Standard Roller		2000 g $\pm$ 50 g		Angle Range		0 ~ 60°	
Weight		1000 g $\pm$ 5g (with hook)		Panel Width		120 mm	
Test Plate A		125 mm (L) x 50 mm (W) x 1.3 mm (D)		Testable Area Width		80 mm	
Timing Range		0 ~ 9999 hrs 59 min 59 sec		Standard Steel Ball		1/32 inch ~ 1 inch	
Number of Stations		8		Instrument Dimension		320 mm (L) x 140 mm (W) x 180 mm (H)	

## 13 Digital Torque Tester

The application torque and removal torque of caps or closures of bottles, spout bags and flexible tube packages are important online and offline production parameters for the manufacturers, they may influence the transportation and consumption of the products.

Items	Model	CG12M	PARAM® NJY-20
Load Cell Capacity		5 Nm (Standard); 20 Nm (Optional); 40 Nm (Optional)	20 Nm (Standard); 40 Nm (Optional); 50 Nm (Optional)
Accuracy		Indicated Value $\pm 0.5\%$ (10%-100% of Load cell capacity)	1% of reading value
Resolution		0.0001 Nm	0.001 Nm
Clamp Range		(Body) $\Phi 5$ mm ~ $\Phi 170$ mm; (Cap) $\Phi 10$ mm ~ $\Phi 80$ mm	$\Phi 5$ mm ~ $\Phi 170$ mm (Diameter)
Statistical Analysis Allowance		0 ~ 999	1 ~ 9



## 14 Abrasion Resistance



This series of instruments can be used to measure abrasion resistance of surface layers (ink layer or photosensitive (PS) coating) of printed materials. They can analyze the problems of poor abrasion resistance, ink layer falling off, lower printable force, and poor hardness of coating layers of printed materials.

Items	Model	PARAM® RT-01
Rub Pressure		8.9 N (2lb); 17.8N (4lb)
Rub Speed		21, 42, 85, 106 cpm
Rub Times		0~999999
Number of Specimens		1~2



## 15 Box Compression Tester

Box Compression Tester can be used to measure the compressive resistance, deformation and stacking capability of cartons, beehive crates, plastic tanks, paper tanks, paper cases, IBC tanks and other packages. The instrument supports test monitoring and online laboratory data management.

Items	Model	CG11B	CG11M
Load Cell Capacity		9 KN (3 pcs)	9 KN (3 pcs)
Accuracy		Indicated Value $\pm 1\%$ (10% ~ 100% of load cell capacity)	Indicated Value $\pm 1\%$ (10% ~ 100% of load cell capacity)
Force Resolution		1 N	1 N
Deformation Resolution		0.1 mm	0.1 mm
Test Speed		0 ~ 200mm/min (Any integer within the specified range)	0 ~ 200mm/min (Any integer within the specified range)
Test Space		0.6 m (L) x 0.6 m (W) x 0.61 m (H)	0.8 m (L) x 0.8 m (W) x 0.61 m (H)
Photos			

## 16 Flex Durability Tester

CG81M Flex Durability Tester is professionally applicable to the determination of flex durability of flexible films, composite films and coating films. The instrument can simulate the kneading and creasing behaviors of films happened during production, processing and transportation.

Items	Model	CG81M
Flex Frequency		45 cpm
Flex Angle		440° / 400°
Horizontal Stroke		155 mm / 80 mm
Number of Stations		4



## 17 Fogging Tester

FT-F1 is professionally designed for the fogging characteristics evaluation of volatile constituents of decorating materials used in cars and aircrafts, e.g. plastic articles, polyurethane, textiles, leather, adhesives, nonwovens and thermal forming elastomers at high temperature conditions. Furthermore it could be used for the fogging phenomenon test of high intensity discharge (HID) headlamps of cars.

Items	Model	PARAM® FT-F1
Temperature Range of High-Temperature Bath		Room temperature~150°C; (room temperature~280°C is optional)
Accuracy		$\pm 0.1^\circ\text{C}$ (150°C)
Temperature Range of Low-Temperature Bath		0~100°C
Accuracy		$\pm 0.1^\circ\text{C}$
Temperature Bath		(High) 670 mm (L) x 490 mm (W) x 540 mm (H); (Low) 400 mm (L) x 220 mm (W) x 520 mm (H)



## 18 Air Permeability Tester

TQD-G1A is professionally designed for the determination of air permeability of decorating materials used in cars, e.g. polyurethane, expanded plastics, PVC, leather, textiles, nonwovens and other materials. Through the test, physical characteristics of materials could be controlled to meet practical application requirements.

Items	Model	PARAM® TOD-G1A
Test Range of Pressure Difference		0~1000 Pa
Test Range of Flux		0~30 L/min
Sample Size		2" x 2" (5cm x 5cm)
Inter Face Size		$\Phi 8$ mm Polyurethane Pipe



Labthink Instruments Co., Ltd. (Labthink) was founded in 1989. It is a leading supplier of packaging testing instruments and solutions globally and also the world's first corporate partner of the World Packaging Organization (WPO). The operational headquarters is located in Jinan, Shandong, China, with international headquarters in Boston, USA, European branch in Frankfurt, Germany, Asia-Pacific branch in Kuala Lumpur, Malaysia, and an office in Dubai, UAE. With a presence in more than 70 countries and regions worldwide, Labthink is a multinational high-tech company dedicated to helping customers succeed, employees develop, and brands gain respect.

For more than 30 years, Labthink has been focusing on the field of packaging testing. Through continuous technological innovation, Labthink has developed over 200 patented technologies, including a major breakthrough in "independent core sensor technology." Labthink's cutting-edge product group, centered on the C series, covers performance testing for packaging and related materials, such as oxygen permeability, air permeability, water vapor permeability, mechanics, heat seal, hot tack, thermal shrinkage, coefficient of friction, thickness, impact resistance, seal & leakage, headspace gas analysis, adhesion, rubbing and many others.

Labthink ilac-MRA CNAS certified laboratory - Labthink Packaging Safety Testing Center, is known for its comprehensive testing capabilities and extensive collection of instruments. The laboratory covers an area of 410 square meters and is equipped with more than 120 sets of professional packaging instruments. The center offers reliable and accurate data services to help customers respond to development challenges and achieve commercial success. The experienced technical team receives samples from customers around the world, offering in-depth data analysis, problem diagnosis and customized testing solutions that meet unique needs, such as special samples, difficult tests, and tests that may involve danger and risk.

Labthink is committed to collaborating with the industry to advance the development of testing methods, theories, standards, and specifications. It plays an active role in promoting the standardization of the industry's data system and has already hosted and participated in the drafting of national standards for packaging materials testing. Leveraging its extensive experience and expertise, Labthink continues to promote "Inter-laboratory Test Data Proficiency Services" in China and North America. These initiatives help laboratories standardize their testing methods and enhance their testing capabilities, while promoting progress and development in the industry as a whole.

Labthink adheres to innovation and precision in its development strategy, constantly exploring new frontiers in microscopic testing to create new enterprise value and help the industrial chain continue to progress.

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