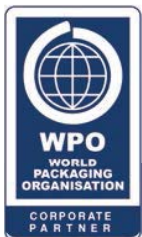




# Labthink®



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



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### 1 Barrier Property

Barrier Property refers to the ability of packaging materials to prevent gas or liquid, which could be divided into gas (O<sub>2</sub>, N<sub>2</sub> and CO<sub>2</sub>) permeability and water vapor permeability. Barrier property is an important factor to ensure product quality and to extend shelf life. By analyzing barrier property, oxidative deterioration, mildewing and many other problems caused by the exposure of products to oxygen or water vapor can be effectively solved.

### 2 Physical and Mechanical Property

Physical and mechanical property is the base to determine whether the packaging is suitable for contents in the process of production, transportation, sale or usage. Generally it includes the following tests:

#### 1 Tensile Strength and Elongation Rate:

It refers to the maximum stress that is applied to packaging material before its failure and elongation rate at break. The test helps solve poor tensile strength and protect packages from damage.

#### 2 Peel Strength:

It is the adhesive strength between layers of laminated materials. If peel strength is improper, interlayer delaminating may occur to the packaging, abating its mechanical and barrier properties, or causing other problems.

#### 3 Heat Seal Strength:

It is to measure seal strength of packages. If heat seal strength is insufficient, packages will crack at the sealing edge, resulting in content leakage and pollution.

#### 4 Puncture Resistance:

It is to measure puncture resistance of packages or rubber stoppers to rigid objects.

#### 5 Heat Shrinkage:

It is to measure the shrinkage performance of materials when being heated.

#### 6 Impact Resistance:

The test helps ensure package integrity as falling or impacting occurs during product circulation process.

#### 7 Tear Strength:

Proper tear strength could effectively protect packages or material from being torn up under external force in the process of storage and transportation to ensure package integrity. Besides, tear strength determines the easiness of opening a package.

#### 8 Flex Durability:

Overall packaging performance of packages or material is affected by rubbing, torsion bending or compression occurred in production, processing, transportation and usage, especially for barrier property. By comparing the differences before and after detection, flex durability of materials can be quantitatively analyzed and evaluated.

#### 9 Compression Performance:

It is inevitable for packages to be stacked or squeezed in storage or transportation process. Compression performance of materials can be scientifically and quantitatively analyzed and evaluated through simulating real stacking and squeezing conditions

- and comparing the differences of test samples before and after detection.

### 3 Coefficient of Friction

Coefficient of friction is an important factor to evaluate the smoothness between inside and outside of packaging materials, by which easiness of opening a package and transporting or packaging on production line can be reasonably controlled to meet high speed packaging requirements.

### 4 Thickness

Thickness evenness is the base to determine other properties of packaging materials. Uneven thickness has a direct effect on barrier property and tensile strength, so high-precision control on thickness is the essential means to ensure material quality and reduce production cost.

### 5 Migration & Non-volatile-matter Content Property

Migration & Non-volatile-matter Content Tester is widely used for determination of migration of various packaging materials for food and their products, non-volatile contents of packaging materials for pharmaceuticals, total solids, water and fat of food, water and insoluble substances of pharmaceuticals and food additives.

### 6 Heat Shrinkage Property

Heat shrinking performance and dimensional stability of various films, heatshrinkable tubes, hard PVC films for tablets, and back-sheets in the fluid medium or air is very important for bottle industry.

### 7 Sealing Performance

Sealing performance refers to the reliability of sealing packages, which could ensure the package integrity and avoid leakage, pollution, deterioration, etc.

### 8 Torque Detection

Bottles are widely used in packaging industry. The application and removal torque of bottle caps are important mechanical parameters for online and offline production. Torque value also influences the transportation and consumption of products.

### 9 Headspace Gas Analysis

In this test, the volume and proportion of oxygen and carbon dioxide which exist in the headspace of pouches, bottles, cans and other hollow packages can be accurately evaluated, which helps to guide production and ensure shelf life and quality.

### 10 Printing Quality Detection

Beautiful package printing attracts customer's attention, and increases customer trust. Only when printing quality is effectively controlled, high quality and attractive printing can be achieved.

#### 1 Abrasion Resistance

Printing ink layer falling off from package has a bad effect on product image and customer trust. Such problems can be avoided or controlled in the transportation process by detecting ink layer abrasion resistance.





#### 2 Color Control

A common practice to check printing quality is by naked eyes. Because of light or metamerism, human definition will be inaccurate, even influence final printing quality. A standard light source can effectively solve such problem.

## 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	C230H	C230M	C201B
Test Range	cc /(m <sup>2</sup> ·day)	0.02~200	0.01~200	0.01~5000	0.1~200
	cc /(100in <sup>2</sup> ·day)	/	0.0007~12.9	0.0007~322	/
	cc /(pkg·day) (Package)	/	0.00005~1	0.00005~25	/
Resolution	cc /(m <sup>2</sup> ·day)	0.01	0.001	0.001	0.1
Repeatability	cc /(m <sup>2</sup> ·day)	0.02 or 1% (whichever the greater)	0.01 or 2%	0.01 or 2% (whichever the greater)	/
Test Temperature	°C	15~50±0.15, 5~60 (Optional)	10~55 ±0.2	10~55 ±0.2	15~50 ±0.5 (Optional)
Test Humidity	RH	0%, 5~90%±2%	0%, 5%~90%±1%, 100%	0%, 5%~90%±1%, 100%	/
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, tired and permeable membranes at various temperatures.

Items	Model	C106H	C130H	VAC-V2	C101B
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>3</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)	0.1~5,000
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(Optional)
Temperature Fluctuation		±0.15°C	±0.05°C	±0.1°C	±0.5°C
Vacuum Resolution		0.01 Pa	0.01 Pa	0.1 Pa	1 Pa
Vacuum Degree of Test Chamber		< 10 Pa	<10 Pa	<20 Pa	< 20 Pa
Test Humidity		0%, 5~90%±2% (Customized)	Humidifying of Test Gas (customization available)	0%RH, 2%RH~98.5%RH, 100%RH (humidity generator is optional)	/
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## 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	C301B
Test Range	g/(m <sup>2</sup> ·d) (Standard)	0.02 ~ 40	0.02 ~ 40	0.005 ~ 40	0.1 ~ 40
	g/(pkg·d) (Package)	/	/	0.000025 ~ 0.2	/
Resolution	g/(m <sup>2</sup> ·d)	0.0001	0.0001	0.0001	0.1
Repeatability	g/(m <sup>2</sup> ·d)	0.02 or 2% (whichever the greater)	0.02 or 2% (whichever is greater)	0.005 or 2% (whichever is greater)	/
Test Temperature	°C	15 ~ 50、5 ~ 60 (Optional)	15 ~ 50、5 ~ 60 (customized)	10 ~ 55 ±0.2	15 ~ 50 ±0.5
Test Humidity	RH	100%, 5 ~ 90%±2%	5 ~ 90%±2%	5% ~ 90% ±1%, 100%	4%RH ~ 100%RH±2%
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## 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	Resolution 0.0001 g
	>5g/(m <sup>2</sup> ·day)	≤8 hours	≤12 hours	
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	/
		77g / (100in <sup>2</sup> ·day) per piece	77g / (100in <sup>2</sup> ·day) per piece	
Test Station		6	12	1~3 with independent test results
Test Temperature	°C	20~55±0.2	20~55±0.2	15°C ~ 55°C ±0.1°C (standard)
Test Humidity	RH	10%~90%±1%	10%~90%±1%	10%~98%±1%
Photos				

## C Electrolytic Sensor

Items	Model	C330M	C330H	C330G	 
Test Range	g/(m <sup>2</sup> ·d) (Standard)	0.01~ 50	0.005 ~ 50	0.00005 ~ 5	
	g/(pkg·d) (Package)	0.00005 ~ 0.25	0.000025 ~ 0.25	0.00000025 ~ 0.025	
Resolution	g/(m <sup>2</sup> ·d)	0.001	0.001	0.00001	
Repeatability	g/(m <sup>2</sup> ·d)	0.01 or 2%, whichever is greater	0.005 or 2%, whichever is greater	0.005 or 2%, whichever is greater	
Test Temperature	°C	10 ~ 55 ±0.2	10 ~ 55 ±0.2	10 ~ 55 ±0.2	
Test Humidity	RH	5% ~ 90% ±1%, 100%	5% ~ 90% ±1%, 100%	5% ~ 90% ±1%, 100%	

## 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-Strentek 1510	C610M	C610H	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) 750 N, 1000 N (Customization Available)	500 N (standard) 30 N, 50 N, 100 N, 200 N (optional) 750 N, 1000 N (Customization Available)	250 N (standard) 50 N, 100 N, 500 N (optional) 750N, 1000N (Customization Available)
Accuracy	1% FS	±0.5% of reading	±0.5% of reading (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 coefficients 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 $\pm 0.5\%$ (10%FS~100%FS) $\pm 0.05\%$ 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	/	/
				

## 5 Heat Seal and Hot Tack




Heat Seal Testers can be used to determine the heat seal temperature, pressure, and duration 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	PARAM <sup>®</sup> HTT-LI	C632B
Sealing Temperature		Room temperature ~ 300°C	Room temperature ~ 300°C	Room temperature ~ 250°C	Room temperature ~ 250°C
Temperature Fluctuation		$\pm 0.2$ °C	$\pm 0.2$ °C	$\pm 0.2$ °C	$\pm 0.2$ °C
Temperature Gradient		$\leq 20$ °C	N/A	N/A	N/A
Dwell Time		0.1 ~ 999.99 s	0.1 ~ 999.9 s	0.1 ~ 999.9 s	0.1 ~ 999.9 s
Sealing Pressure		0.05Mpa ~ 0.7 Mpa (7psi ~ 101psi)	0.05Mpa ~ 0.7 Mpa	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 5 mm (customization available)	100 mm x 5 mm
Heating Mode		Single heating surface or double heating surfaces	Single heating surface or double heating surfaces	Single heating surface or double heating surfaces	Single heating surface or double heating surfaces
Load Cell Capacity		/	/	0 ~ 200 N (30 N, 50 N and 100 N are optional)	30 N (Standard); 50 N 100 N 200 N (Optional)
Force Accuracy		/	/	100 150 200 300 500 and hot tack (mm/min)	150 200 300 500 hot tack 1500mm/min~ 2000mm/min
Dwell Time (Hot Tack Test)		/	/	0.1 ~ 999.9 s	0.1 ~ 999.9 s
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		$\pm 0.25\%$ FS	1% FS	Resolution		0.1 KPa / 0.01 psi
Vacuum Chamber Effective Sizes		$\Phi 270$ mm x 210 mm (H) (standard) $\Phi 360$ mm x 585 mm (H) (optional) $\Phi 460$ mm x 330 mm (H) (optional) Note: customization is available for other sizes	$\Phi 270$ mm x 210 mm (H) (standard) $\Phi 360$ mm x 585 mm (H) (optional) $\Phi 460$ mm x 330 mm (H) (optional) Note: customization is available for other sizes	Pressure Accuracy		$\pm 0.25\%$ 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. The thickness of test specimens should be less than 1 mm.

Items \ Model	PARAM <sup>®</sup> BMC-BI	C670M	
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 x15 mm (Standard)	$\leq$ 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	C612M	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	PARAM® XYD-15K	C611B	C611M
Load Cell Capacity		15KN or 45KN (Optional)	9 KN (3 pcs)	9 KN (3 pcs)
Accuracy		1% of reading value	Indicated Value $\pm 1\%$ (10% ~ 100% of load cell capacity)	Indicated Value $\pm 1\%$ (10% ~ 100% of load cell capacity)
Force Resolution		1 daN	1 N	1 N
Deformation Resolution		0.1 mm	0.1 mm	0.1 mm
Test Speed		5 mm/min, 10 mm/min, 12.7 mm/min	0 ~ 200mm/min (Any integer within the specified range)	0 ~ 200mm/min (Any integer within the specified range)
Test Space		1 m (L) x 1 m (W) x 1.3 m (H)	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

C681M 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	C681M	
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-G1 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-G1	
Test Range of Pressure Difference		0~1000 Pa	
Test Range of Flux		0~30 L/min	
Specimen Size		Method A : 52 mm x 52 mm; Method B : $\Phi 12$ mm $\leq$ D(diameter) $\leq$ $\Phi 71$ mm	
Port Size		$\Phi 8$ mm PU Tubing	