BOTO GROUP

UV aging test chamber

Technical Solution

BOTO GROUP LTD.

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www.botomachine.com

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Introduction

Name：BT-08 UV aging testing machine

Equipment summary：

This testing chamber can simulate the harm caused by sunlight, rain, and dew. UV uses fluorescent ultraviolet UV lamps to simulate the effect of sunlight, and uses condensed moisture to simulate rain and dew. The tested materials are exposed to light and moisture at a certain temperature. Test in alternate cyclic programs. UV can reproduce the hazards that occur outdoors in months to years in a few days or weeks. UV test data can help you choose new materials and evaluate how changes in formulations affect the durability of new products.

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Use:

1. The UV weathering tester is mainly used to simulate the damaging effects of sunlight, humidity and temperature on materials;
2. Material aging includes fading, loss of gloss, strength reduction, cracking, peeling, chalking and oxidation, etc.;
3. The UV weathering tester simulates sunlight, condensation, and natural humidity, and the sample is tested in a simulated environment for several days or weeks, which can reproduce the damage that may occur outdoors for months or years;
4. In the ultraviolet weathering test machine, the fluorescent ultraviolet of the ultraviolet lamp can reproduce the influence of sunlight, and the condensation and water spray system can reproduce the influence of rain and dew;
5. During the entire test cycle, the temperature is controllable;
6. A typical test cycle is usually ultraviolet light irradiation at high temperature and a dark and humid condensation cycle with a relative humidity of 100%;
7. Typical applications are paint coatings, automotive industry, plastic products, wood products, glue, anodic oxide film, etc.

Technical parameter:

Model	**BT-08 UV aging testing machine**
Temperature range:	RT+10℃～70℃
Temperature fluctuation:	±0.5℃
Temperature uniformity:	±1℃
Humidity range:	≥90%RH
Center distance in lamp tube:	70mm
The distance between the test product and the center of the lamp tube:	50±3mm
Ultraviolet tube:	UVA-340 wavelength range 290-400nm (its peak value is 340nm) UVB-313 wavelength range 280-315nm (Its peak is 313nm)
Standard test piece:	75×150mm/21 pieces

Irradiation intensity:	0.30-1.1W/㎡/adjustable 313nm, 340nm band (setting the irradiation intensity value through the touch screen)
Irradiation control:	Intelligent control of irradiance, real-time feedback of the irradiance value detected by the irradiance sensor, compared with the set value of the irradiation on the touch, and then the lamp ballast is controlled by the output voltage of the PLC , And finally realize the control of the brightness of the lamp tube, so as to adjust the irradiance PID setting and automatically compensate the set value.
Compliant with standards:	GB/T 14522-93 ASTM G 154, ISO 4892-1 ISO 11507 ASTMD 4329 SAE J 2020

Product structure:

1. Studio size: 450 × 1170 × 500mm (depth × width × height)
2. Dimensions: 550× 1300× 1480mm (D×W×H)
3. Inner material: SUS304 stainless steel plate
   Shell material: SUS304 stainless steel plate
4. American Q-LAB tube: UVA-340 ultraviolet tube, 4 in a row, 40W/piece Specification: 1200MM length, diameter: 38MM
   Main peak wavelength UVA340nm wavelength range 290~400nm
   American Q-LAB lamp: UVB-313 ultraviolet lamp, the other row has 4 pieces, 40W/piece Specification: 1200MM length, diameter: 38MM, main peak wavelength UVB313nm wavelength range 280-320nm
5. Water source and consumption: clean water or distilled water 8 liters/day (customer provided)
6. Control system: Cobb (7-inch touch screen and PLC controller)
7. Main components: French Schneider electrical appliances and Japanese Omron
8. Automatic control radiometer: smart radiation sensor, 0-5V signal output.(optional)

2 sets of UV irradiance meter (one set for front and back), irradiance can be controlled independently.

9. The structure of the test box is made of corrosion-resistant metal materials, including 8 fluorescent ultraviolet lamps, a water pan, a test sample rack, a temperature and time control system and an indicator.

10. The lamp power is 40W, and the lamp length is 1200mm. The uniform working area of the test box is 1140×500mm.

11. The lights are installed in a row of four, and installed in two rows. The tubes of each row are installed in parallel, and the center distance of the lights is 70 mm.

12. The test sample is fixedly installed at a position 50 mm away from the nearest parallel surface of the lamp surface. The test sample and its bracket constitute the inner wall of the box, and their backs are exposed to the cooling air at room temperature due to the temperature difference between the test sample and the air in the box. In order to produce stable condensation conditions during the condensation stage on the surface of the test sample, the test box should generate natural air convection from the bottom through the outer wall of the box and the channel of the test sample.

13. The water vapor is generated by the water tray with the lower heating box, the water depth is not more than 25mm, and there is an automatic water supply controller. The water tray should be cleaned regularly to prevent the formation of scale.

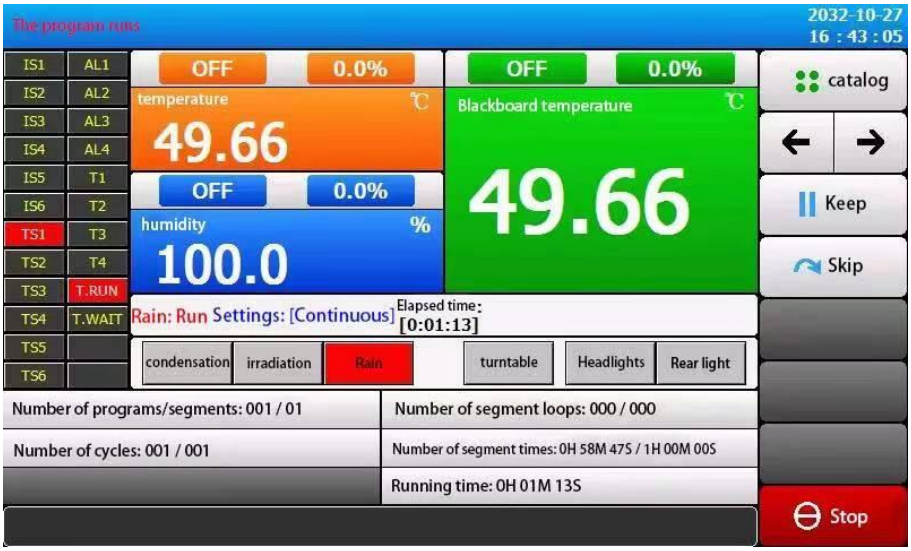
14. The temperature of the test box is measured by a sensor fixed on a black aluminum plate (black board) with a width of 75 mm, a height of 100 mm, and a thickness of 2.5 mm. The blackboard should be placed in the central area of the exposure test. The measuring range of the thermometer is 30～80℃. , The tolerance is ±1℃. The light and condensation stage should be controlled separately, and the condensation stage is controlled by the heating water temperature.

15. The test box should be placed in a test room with a temperature of 15～35℃, 300mm away from the wall, and the influence of other heat sources should be prevented. The air in the test room should not circulate strongly, so as not to affect the light and condensation conditions.

Controller interface:

Boot interface:

Run interface:



Test conditions:

1. The test sample fixing device is on the test rack, facing the fluorescent lamp. When the sample does not fill the sample rack, it is necessary to fill the sample rack with a blackboard to keep the inner wall of the test box closed.
2. Test temperature. Three temperatures of 50, 60, 70°C can be used for illumination, and 60°C is

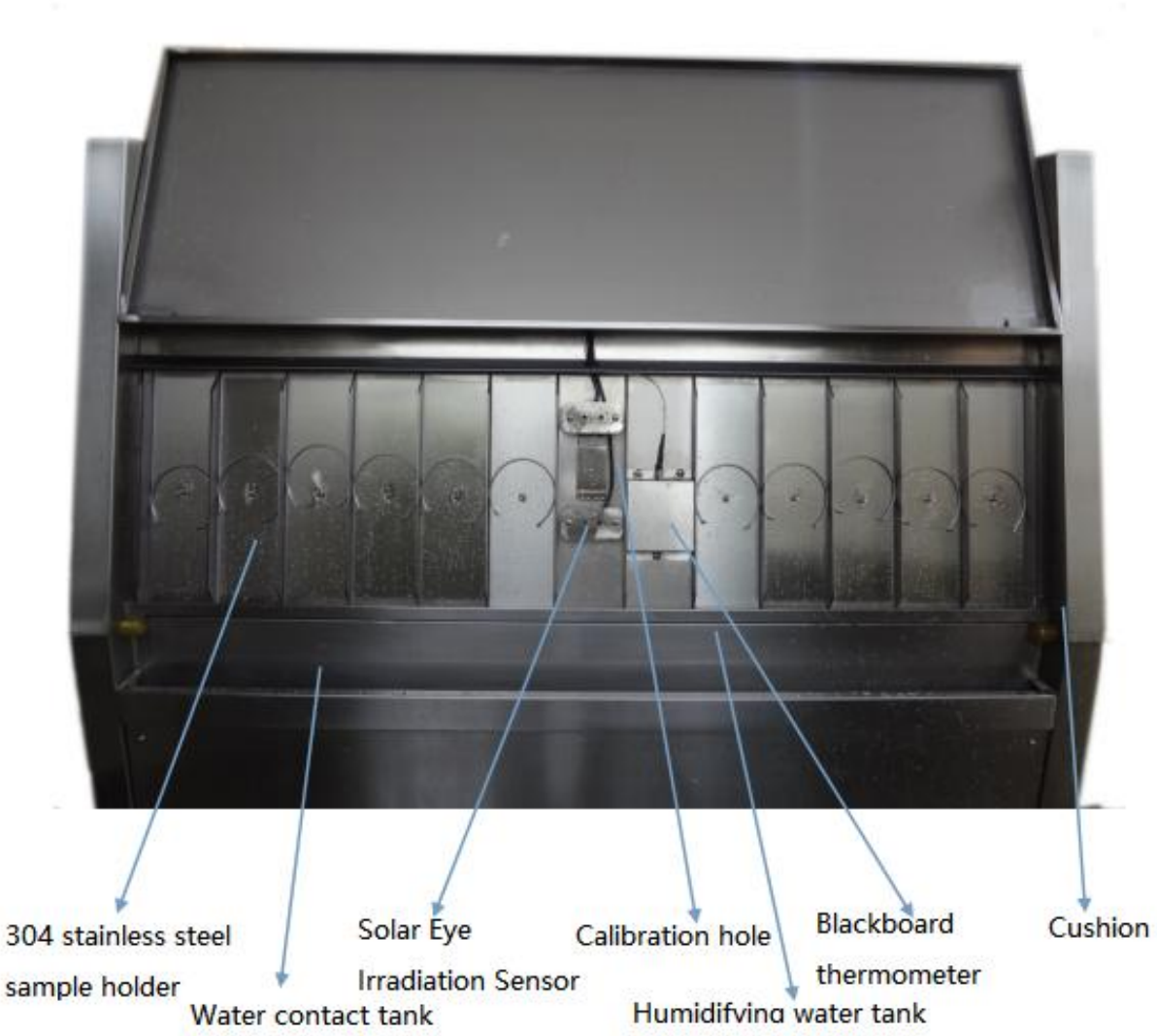
preferred; the temperature in the condensation stage is 50°C, and the temperature tolerance uniformity is ±2.

3. The cycle of each condensation of illumination can choose 4H illumination, 4H condensation or 8H illumination, 4H condensation two cycles.
After the first 400-450 hours of light, each row of tubes needs to be replaced with a fluorescent lamp, and other tubes should compensate for the loss caused by the aging of the tubes according to the lamp cycle and replacement method. This mode of operation ensures that the service life of each lamp tube is between 1600 and 1800H.

4. When replacing the lamp, the water pan should be wiped dry and cleaned to avoid the formation of scale.

Equipment structure:

The structure of the ultraviolet weatherproof box is a stainless steel inner box space. Two rows of four lamps are installed to simulate ultraviolet light. The temperature of the inner box is increased by a humidification system to simulate a humid environment, and a sprinkler system is used to simulate rain. The three different environments are set to cycle alternately through the program.



Schematic diagram of test area:

1. Lamp distribution diagram: (4 imported lamps on each side, 8 in total) ------- (see Figure 1)
2. Sprinkler head distribution map: (Note: The 4 circular devices located on the horizontal line in this figure are sprinkler heads, 4 on each side, 8 in total) ----- (see Figure 1)

Figure 1

3. Spectral distribution chart: ---------- (see Figure 2)

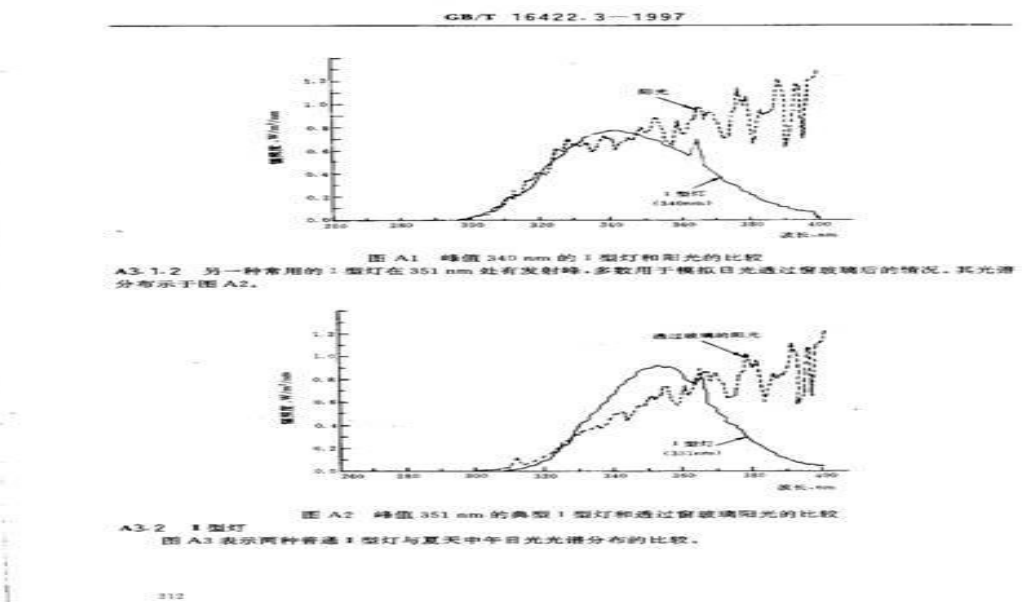


Figure 2

4. The overall structure of the equipment ---------- (see Figure 3)

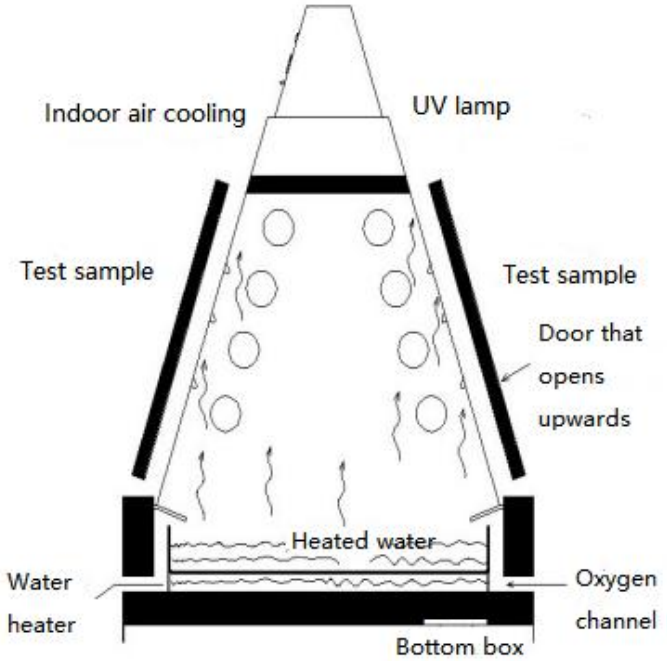


Figure 3

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Test samples and performance evaluation:

1. Appearance evaluation: The paint is mainly the appearance evaluation. Plastic and rubber can also be evaluated when necessary. The inspection items are mainly gloss, color change, chalking, spots, blistering, cracks and dimensional stability. Instruments should be used as far as possible for quantitative item testing, such as gloss and color difference meters.

2. Evaluation of mechanics and other properties: general rubber materials are subjected to tensile strength, elongation, hardness measurement, plastic measurement impact strength, elongation at break, tensile strength, bending strength, and other performance test items can be specified if necessary.

Safety protection device:

1. Leakage protection
2. Overload protection
3. Over temperature protection
4. Acoustic alarm
5. Water shortage, grounding protection

Supplement instruction:

Use voltage: AC220V 50HZ
Use environment: installation ground can not be inclined
No other items can be placed within 60cm around the instrumen

Provide documentation:

1. Order specification, provide a copy when ordering
2. Instructions for use A copy is provided at the time of delivery

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Factory real pictures display

1.Certificate

ISO certificate


注册号：00921Q11072R0S

长城（天津）质量保证中心有限公司

质量管理体系认证证书

兹证明 上海柏毅试验设备有限公司

（统一社会信用代码：91310114561899045X）

位于 注册地址：上海市嘉定区安亭镇杨木桥支路8号6幢A区

邮编 201804

办公/服务地址：上海市嘉定区曹安公路5616号财富广场2304室

邮编 201805

其质量管理体系符合 GB/T19001-2016/ISO9001:2015 标准

该质量管理体系认证范围

温度试验设备、检测试验设备的销售。

颁证日期 2021年6月18日 有效期至 2024年6月17日

长城（天津）质量保证中心有限公司 总经理

IAF CNAS 中国认可 国际互认 管理体系 MANAGEMENT SYSTEM CNAS C009-M


Registration No.: 00921Q11072R0S

CHINA GREAT WALL (TIANJIN)
QUALITY ASSURANCE CENTRE CO., LTD
QUALITY MANAGEMENT SYSTEM CERTIFICATE

We hereby certify that
Shanghai BoYi Test Equipment Co. Ltd.
(Unified social credit code:91310114561899045X)
Registered address is located at: Area A, Building 6, No. 8, Yangmuqiao Branch Road, Anting Town, Jiading District, Shanghai. Post Code: 201804
Office/Service address is located at: Room 2304, Fortune Plaza, No.5616 Caoan Highway, Jiading District, Shanghai. Post Code: 201805
Its quality management system meets the requirements of the GB/T19001-2016/ISO9001:2015 Standard.
The quality management system applies in the following areas:
Sales Of Temperature Test Equipment, Testing Test Equipment.
Date of Issuance: Jun. 18th, 2021 Date of Expiry: Jun. 17th, 2024

General Manager

IAF CNAS 中国认可 国际互认 管理体系 MANAGEMENT SYSTEM CNAS C009-M

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Some patents (nearly 100) and certificates

Hot & Cold test chamber

- 2017 Annual News Stone Hero List Quality Award

China Printed Circuit Industry Association

Joint Laboratory of Power Battery Safety Testing

Shanghai BOYI & Beijing Jiaotong University

China quality club enterprise member

Some patents (nearly 100) and certificates

2.Shanghai Office :

3.Factory environment area

Work shop

Our team

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4.Spot exhibition hall area\finished product area

5.BOTO GORUP Factory located in Hunan Yueyang Industrial Park.

The industrial park is constructed by Shanghai Boyi Test Equipment Co., LTD with a total investment of RMB 400 million. Mainly engaged in the research and development and manufacturing of the whole chain of laboratory equipment; It is located next to yueyang section of Wuhan-Guangzhou high-speed railway, adjacent to Lotus Airport, and has very convenient transportation. The industrial park covers an area of 40 mu, consisting of a comprehensive office building and two standard factories, with a total construction area of nearly 20,000 square meters



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Showroom 1

Showroom 2

6.On December 23, 2021, Li Aiwu, deputy Secretary of CPC Committee and Mayor of Yueyang city, Hunan Province, led the participants of yueyang City industrial project construction mobile site meeting to inspect our company and observe the construction of industrial projects.

7.After the industrial park is fully put into operation, it can meet the annual output of new energy 3C semiconductor electronic circuit optical communication industry laboratory testing room environment simulation box 1200 sets; Another company has an independent sheet metal production and processing center, can independently undertake manufacturing business








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8.Standard size machine

225L High and Low Temperature Humidity and Heat Alternating Test Chamber

20 L constant temperature and humidity test chamber

Overlapping Temperature and humidity chamber

Thermalshock test chamber

Double layer constant temperature test chamber

Salt spray test chamber

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150LVertical high and low temperature test chamber

Ventilation type aging test chamber

Leaning tower ultraviolet aging test chamber

9 .Large non-standard real pictures display area

3.6 m3 constant temperature and humidity laboratory

9 cubic meters low temperature room, 13 cubic meters high temperature room

Three comprehensive test chamber

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10.Shipment




Self-produced and sold **No dealer link** **Save you 30%** **Quality and after-sales are recognized by customers**