GUANGDONG ZHONGZHI TESTING INSTRUMENTS CO., LTD.
Address: 417, Shatian Section, Gangkou Road, Shatian Town,
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Web.:https://www.tempcyclechamber.com/

UV Aging Test Machine

Product Technical Specifications

The pictures are for reference only, the actual product shall prevail

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1. Overview:

1.1 Product Usage

This product uses fluorescent ultraviolet lamps that can best simulate the UV spectrum of sunlight, and combines temperature control, humidity supply and other devices to simulate factors such as sunlight (UV segment) high temperature, high humidity, condensation, dark cycle, etc. that may cause discoloration, brightness, strength decline; cracking, peeling, powdering, oxidation and other damages to materials. At the same time, through the synergistic effect between ultraviolet light and moisture, the single light resistance or single moisture resistance of the material is weakened or invalidated, so it is widely used to evaluate the weather resistance of materials.

1.2 How it works

This testing machine uses imported fluorescent UV lamps as light sources, and conducts accelerated weathering tests on materials by simulating UV radiation in natural sunlight, condensation and rain at night, to obtain the results of material weathering resistance. It helps you select new materials, improve existing materials, and evaluate how changes in formulas affect product durability.

1.3 Test sample restrictions

This test equipment is prohibited from testing samples of flammable, explosive, and volatile substances; testing and storing samples of corrosive substances; testing and storing biological substances; and testing and storing samples of strong electromagnetic radiation sources.

2. Equipment performance technical parameters

1. Volume, weight, dimensions and specifications	
1.1 Product Name	UV aging test machine
1.2 Product Model	CZ-UV-430C
1.3 Studio interior dimensions	1100 × 600 × 650 (mm) W × H × D
1.4 Dimensions	Approx. 1600 × 1512 × 800 (mm) W × H × D
1.5 weight	About 100 kg
1.6 Working noise	≤70db measured in front of the machine, 1 meter away from the machine and 1.2 meters above the ground

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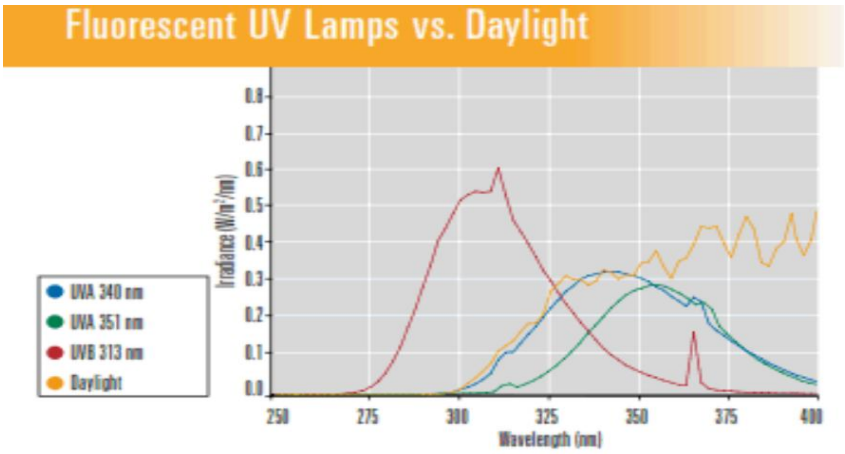
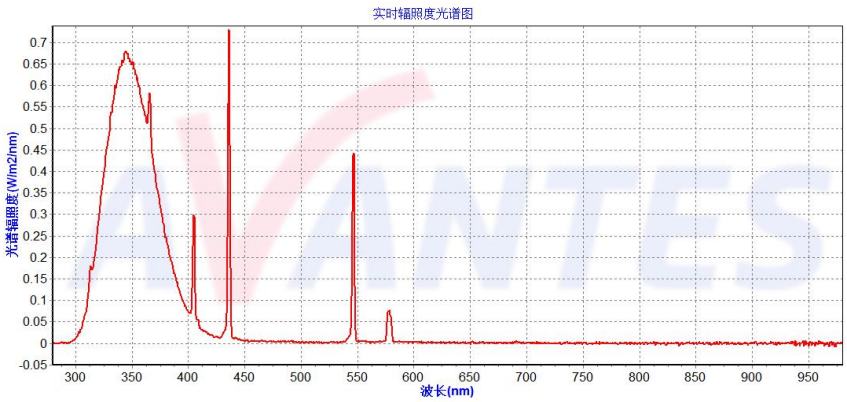
2. Device power, current and power supply	
2.1 Total power of machine	6.5 KW
2.2 Maximum current	20A
2.3 Power supply conditions and power supply	AC 220V single-phase two-wire + protective grounding; voltage fluctuation range allowed is ±10%V; The frequency fluctuation range is 50±0.5Hz; TN-S power supply or TT power supply The grounding resistance of the protective ground wire is less than 4Ω The user is required to configure an air or power switch of corresponding capacity for the equipment at the installation site, and this switch must independently control the use of this equipment. When placing powered samples in the chamber, the sample power supply must use an external power supply, and the power supply of this machine must not be used directly;
3. Main technical parameters of the equipment	
3.1 Light temperature range	50 ～ 70 ℃
3.2 Condensation temperature range	RT～ 60℃
3.3 Humidity range	Condensation cycle ≥ 85% RH; irradiation cycle ≤ 75% RH
3.4 Lamp center distance	70mm ± 2mm
3.5 Distance between sample test surface and lamp center	50±3 mm
3.6 Nozzle quantity	8
3.7 Spray pressure	70 ～ 200Kpa adjustable
3.8 Lamp tube length	1220mm
3.9 Lamp power	40W/piece
3.10 Lamp life	More than 1600h

3.11 Number of lamps	8 pieces (the lamp is installed on the top of the inner box)
3.12 UV-B lamp irradiation distribution diagram	 3.12.1 Standard machine irradiation intensity 0 ~ 1.0W/m ^{2} .313nm adjustable 3.12 .2 When the irradiation intensity is greater than 1.0W/m2.313nm, ^{a} special lamp tube is required (non-standard customization) Note: UV-B lamp is optional. Please indicate when placing an order. If no indication is given, UV-A lamp will be installed by default.
3.13 UV-A lamp irradiation distribution diagram	 3.13.1 Standard machine irradiation intensity 0 ~ 1.2W/m ^{2} .340nm adjustable 3.13.2 When the irradiation intensity is greater than 1.2W/m2 . 340nm ^{requires} a special lamp (non-standard custom-made) Note : UVA lamps are mainly used to simulate the ultraviolet part of outdoor sunlight . If no instructions are given when placing an order, UV-A lamps will be installed by default.

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3.14 Control accuracy	Temperature resolution: 0.01°C Light temperature deviation: ± 2 ℃ Condensation temperature deviation : ± 2 ℃ Light intensity deviation : ± 1 5 %
3.15 Heating rate	Irradiation temperature RT → +70 ℃≤ 45 min Condensation temperature RT → +60 ℃≤ 45 min
3.16 Light temperature range	50 ～ 70 ℃

4. Products meet test conditions and implementation standards

4.1 GBT16422.1-2006/ISO 4892-1:1999 General principles for laboratory light source exposure test methods for plastics

4.2 GB/T 16422.3-2014/ISO 4892-3:2006 Plastics laboratory light source exposure test method Part 2: Xenon arc lamp

4.3 GB/T14522-2008 Test method for artificial weathering of plastics, coatings and rubber materials for mechanical industrial products Fluorescent UV lamp

4.4 GB/T23987-2009/ISO 11507:2007 Artificial weathering exposure of paint and varnish coatings (UV)

4.5 ASTM G154-2006

4.6 ASTM G153

4.7 GB/T9535-2006/IEC 61215:2005 Terrestrial crystalline silicon photovoltaic modules - Design identification and finalization (Part 10.10 Ultraviolet pretreatment test)

5. Equipment structure

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5.1 Test chamber structure layout	The irradiation lamps are evenly arranged at the top to ensure that the tested parts are evenly irradiated and the effect is obvious. The depth of the water tank is 25mm, and the water depth can be controlled The test sample rack is made of stainless steel plate punched and bent, and the distance between the sample rack and the lamp can be adjusted according to the size of the sample. Fixed casters and foot cups are installed at the bottom of the test chamber to facilitate movement and positioning The electrical control box is located on the top of the equipment for easy operation The water supply mode can be selected in manual or automatic mode, which is easy to use Special isolated radiant heating device and air supply system to ensure uniform heat in the test space The surface of the test sample directly forms the inner wall of the test chamber, and condensation is more Specially made spray device and automatic sprinkler, water pressure can be adjusted The door is hinged on the left and closes on the right. It is left-opening and easy to open and close.
5.2 Drainage holes	The bottom of the inner box is equipped with a drainage hole, a manual drainage valve and an overflow hole to quickly drain the spray water.
5.3 Inner box material	SUS304# stainless steel plate is cut by precision laser cutting equipment and bent by CNC folding machine, then fully welded by argon arc welding, and polished. The steel plate is 1.2mm thick. The sample rack tray support indexing rack is set on both sides of the inner box, and the distance between the sample rack and the lamp tube can be adjusted.

5.4 Outer box material	Cold rolled steel plates are cut by precision laser cutting equipment and bent by CNC folding machines, then welded by argon arc welding, and polished. The surface of the steel plate is pickled and rust-removed, and then the surface is treated with high-temperature baking paint. Compared with the usual surface spraying treatment, the appearance is more beautiful and its anti-corrosion and anti-rust performance are enhanced . The steel plate is 1.2mm thick (color R AL7035), and it can also be made of SUS304# stainless steel plate. Note: If the outer box needs to be made of stainless steel, please indicate this when placing an order. If this is not indicated, the outer box is made of cold-rolled steel plate with baking varnish.
5.5 Test hole	A light intensity monitoring hole is set at the back of the box 50mm away from the lamp tube. A handheld irradiation intensity and light intensity detection
5.6 control Panel	LCD touch screen programmable controller , light accumulation timer, power switch, RS-232 communication interface , USB2.0 interface
6. Electrical control system	
6.1 Controller	7-inch LCD touch screen temperature controller, resolution 800 *480 ; Separately control the irradiation temperature, condensation temperature, irradiation time, condensation time, spraying time and working cycle of the controller 
6.2 Temperature input mode	Human-machine interface, touch input

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6.3 Program capacity and control functions	Available program quantity : Maximum 120 groups , 1 program can be composed of 1 to 99 segments Available memory capacity : 1200 segments , commands can be executed repeatedly : each command can be executed up to 999 times, the program slope setting can be set by the time axis, programs can be set to be linked for use, and the program creation adopts a simple conversational operation With editing , clearing , inserting and other functions, 4 groups of time signal output control (can control the ON/OFF action of the object to be tested) It has 9 groups of PID parameter settings, and has the functions of skipping and holding during program execution. It can display curves and collect data; it has the functions of date and time adjustment; it has the functions of button and screen lock (LOCK) and can be connected to a computer for use
6.4 communication	RS-232 communication interface, can be used as monitoring and remote control system, record test data USB 2.0 interface can directly use USB flash drive to record test data
6.5 How it works	Program mode / setting mode
6.6 Setting method	Chinese / English interface, touch input
6.7 Setting range	Maximum temperature range upper limit 5 ℃
6.8 Display resolution	Temperature: 0.01 ℃; Light intensity 0.01W /m2，time: 1min;
6.9 Power off memory function	Power failure recovery mode can be set as: hot start / cold start / stop
6.10 Scheduled startup function	The start time can be set at will, and the machine will automatically run when the time is up after turning on the power.
6.11 Temperature measuring body	PT100 platinum resistance

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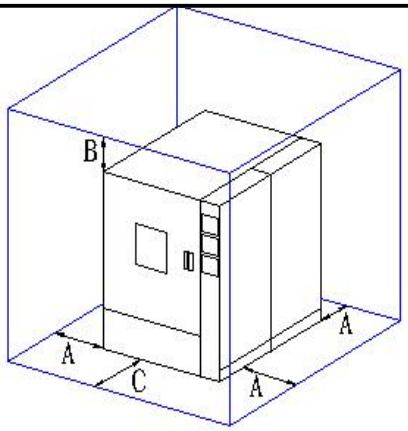
6.12 Irradiance measurement	Photoelectric conversion irradiance meter, monitors the irradiance intensity of the lamp, measuring wavelength range 300～400nm, peak value 340nm /313nm 
6.13 Curve recording function	Battery-protected RAM can save the device's set values, sampling values, and sampling time; the maximum recording time is 60 days (when the sampling period is 1.5 minutes)
6.14 Software usage environment	IBM PC compatible computer, CPU P Ⅱ or above , memory 128M or above, Simplified Chinese Windows 2000 or Simplified Chinese Windows XP , win10 /win11 system
6.15 Heater	Imported nickel-chromium alloy electric heater Heater control mode: contactless equicycle pulse width modulation, SSR (solid state relay)
6.16 humidifier	Imported nickel-chromium alloy electric heater External humidification method
6.17 Lighting fan	Micro blower transfers the heat to the test space to ensure uniform heating of the sample
6.18 Light intensity adjustment	Dimmable electronic ballast automatically adjusts the lamp power according to the light intensity to achieve constant light intensity
6.19 Fault self-diagnosis	When the test chamber fails, it will automatically alarm and cut off the power supply, and display the corresponding alarm information on the human-machine interface
7. Water supply system	
7.1 Water supply method	Automatic/manual dual water supply mode

7.2 Water supply requirements	To ensure the water requirements for equipment spraying and humidification, the water supply pressure of the equipment is 0.2 ~ 0.4Mpa , the water supply pipe diameter is Φ20mm , and the water quality must meet the second-level or above water standards specified in GB/T 6682-2008 Water Specifications and Test Methods for Analytical Laboratories
7.3 Spray water supply	The booster pump increases the water supply , and the water supply pipeline is equipped with a pressure regulating valve and a water pressure gauge to achieve a constant pressure and constant flow water supply mode.
8. Safety protection system	
8.1 Test Chamber	Extreme over-temperature protection, water shortage protection
8.2 Booster pump	Water shortage protection, water pressure over-high protection
8.3 Heating system	Heating tube dry burning, abnormal water supply, abnormal drainage
8.4 power supply	Leakage protection, overload and short circuit protection
8.5 Light fan	Fan overload , fan short circuit , fan reverse protection
9. Factory-provided equipment and information 9.1 1 copy of the equipment factory packing list 9.2 1 copy of equipment electrical schematic diagram 9.3 1 device instruction manual 9.4 1 equipment certificate 9.5 1 piece equipment warranty card 9.6 1 copy of equipment factory inspection report 9.7 5 pieces of wet gauze 9.8 1 piece controller monitoring software CD 9.9 1 set of test sample bracket	
10. Environmental conditions for use and installation site requirements	

10.1 Environmental conditions for use	1、The ambient temperature is 5-30°C and the relative humidity is ≤85%RH; 2、The installation site must be a flat and vibration-free ground; 3、The equipment must be kept away from heat sources and flammable and explosive substances; 4、The installation location should not be exposed to direct sunlight and indoor air circulation should be maintained; 5. The equipment installation site must be clean and cannot be installed in dusty places or near dust outlets.
10.2 Requirements for storage environment	The equipment environment temperature should be kept within 0℃～+45℃ When the ambient temperature is below 0℃ (when the equipment is stopped for a long time), the water in the equipment should be drained to prevent the water in the pipe from freezing and damaging the pipe.
10.3 Installation site requirements	The ground is flat and well ventilated, free of flammable, explosive, corrosive gases and dust; there is no strong electromagnetic radiation source nearby; Site ground load-bearing capacity: not less than 600kg/m2; Allow adequate maintenance space around the equipment. A: not less than 600mm B: not less than 600mm C: not less than 1100mm 

11. Main spare parts list

No.	Product Name	Brand	QTY
13.1	Program Controller	Zhongzhi	1 unit
13.2	Light intensity meter	Beijing Normal University	1 set
13.3	Test chamber	Zhongzhi	1 unit
13.4	Test sample rack	Zhongzhi	1 set
13.5	UV lamp	Atlas, USA	8
13.6	Dimmable Ballast	Philips,Netherlands	4
13.7	Cooling fan	SUNON,China	2
13.8	Heating blower	Yutian,China	1 unit
13.9	Temperature limiter	Rainbow,Korea	3
13.10	Radiation heating tube	Weide,China	1 piece
13.11	Condensation heating tube	Weide,China	2
13.12	Spraying device	Zhongzhi	1 set
13.13	Sprinkler pump	Lingxiao Pump, China	1 unit
13.14	Solid State Relays	Carlo Gavazzi,Swiss	2 sets
13.15	AC contactor	Schneider,France	2
13.16	Intermediate relay	OMRON,Japan	6
13.17	Self-locking switch with light	Siemens,Germany	2
13.18	Temperature Sensor	American Omega	3
13.19	Spray pressure regulating valve	AirTac,Taiwan China	1
13.20	Spray pressure gauge	China Brand	1
13.21	Solenoid valve	AirTac,Taiwan China	2
13.22	Liquid level switch	China Brand	3
13.23	Timer	China Brand	2
13.24	Water tank	Zhongzhi	1
13.25	Other	China Brand	1 batch

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12. Equipment structure layout diagram