Tracking Index Tester

Instruction Manual

KINGPO TECHNOLOGY DEVELOPMENT LIMITED

Leakage Trace Test

一、 Product Description:

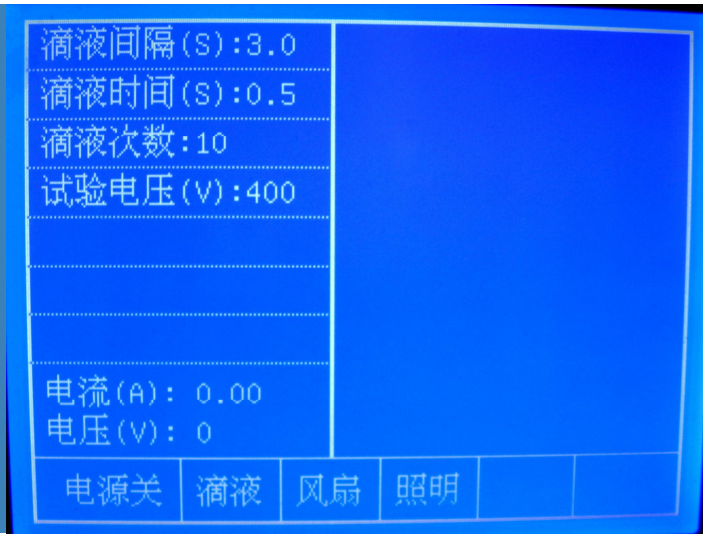
According to the IEC60112、GB4207 standard, the leakage starting mark tester is designed and manufactured, which is mainly used to measure the relative resistance of solid electrical insulating materials to electrical indentation when exposed to impurity water under the action of electric field.

To improve the accuracy and stability of the test instrument, a single chip microcomputer + touch screen control system with high precision temperature meter is adopted to solve the problem that the actual conversion accuracy of PLC system can not reach, and the anti-interference ability is improved.

In order to improve the practicability of the leakage starting mark tester, the product compiles the program according to the actual test flow, and the test control process realizes one-key operation, which is convenient for the test process and also realizes the improvement of the test efficiency. The product also upgrades the mechanical fixture to facilitate the quick installation and adjustment of the sample, plus the one-click operation of the test process, which saves the test time to the greatest extent.

二、 Technical parameters

	Technical parameters
Electrode material	Platinum
Electrode spacing	±0.1 mm
Electrode pressure	1.0±0.05 N
Support sample	Φ90mmX20mm MAX
Box volume	greater than 0.5 cubic metres
Power supply parameters	**1KW/220VAC/48-60Hz**
Full pressure drop	**100-600 V range less than 7 per cent**

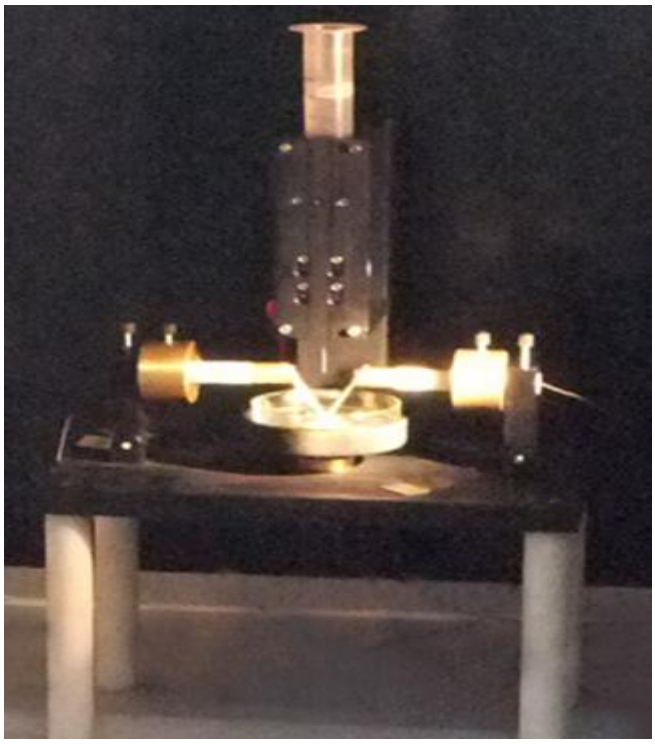


Installation Steps of Leakage Starting Tester

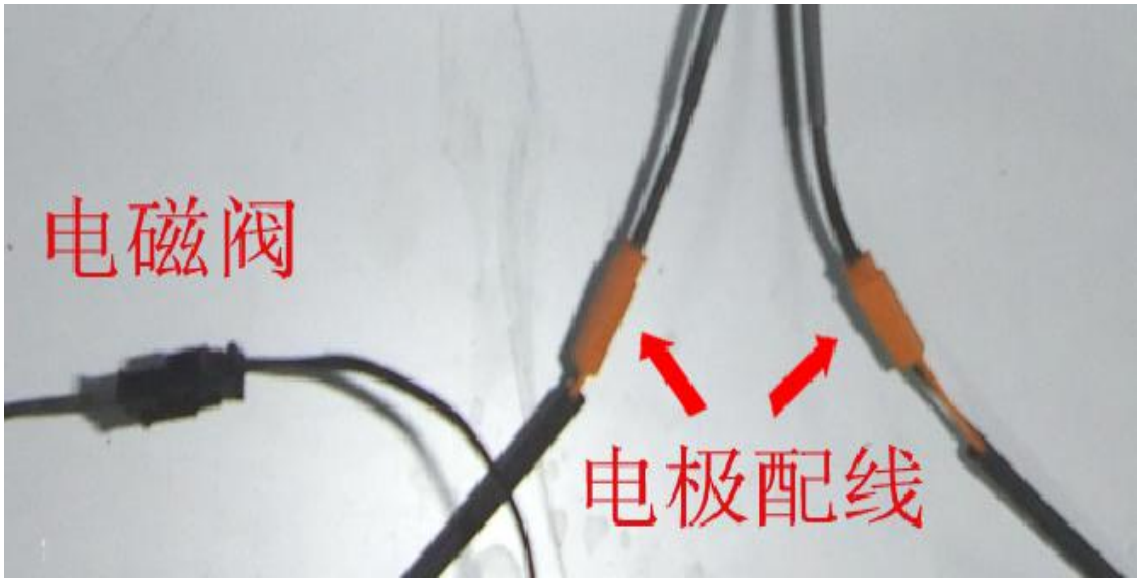
Please read carefully

After removing the packing, there is a carton inside the chassis with related accessories. Please count the packing list.

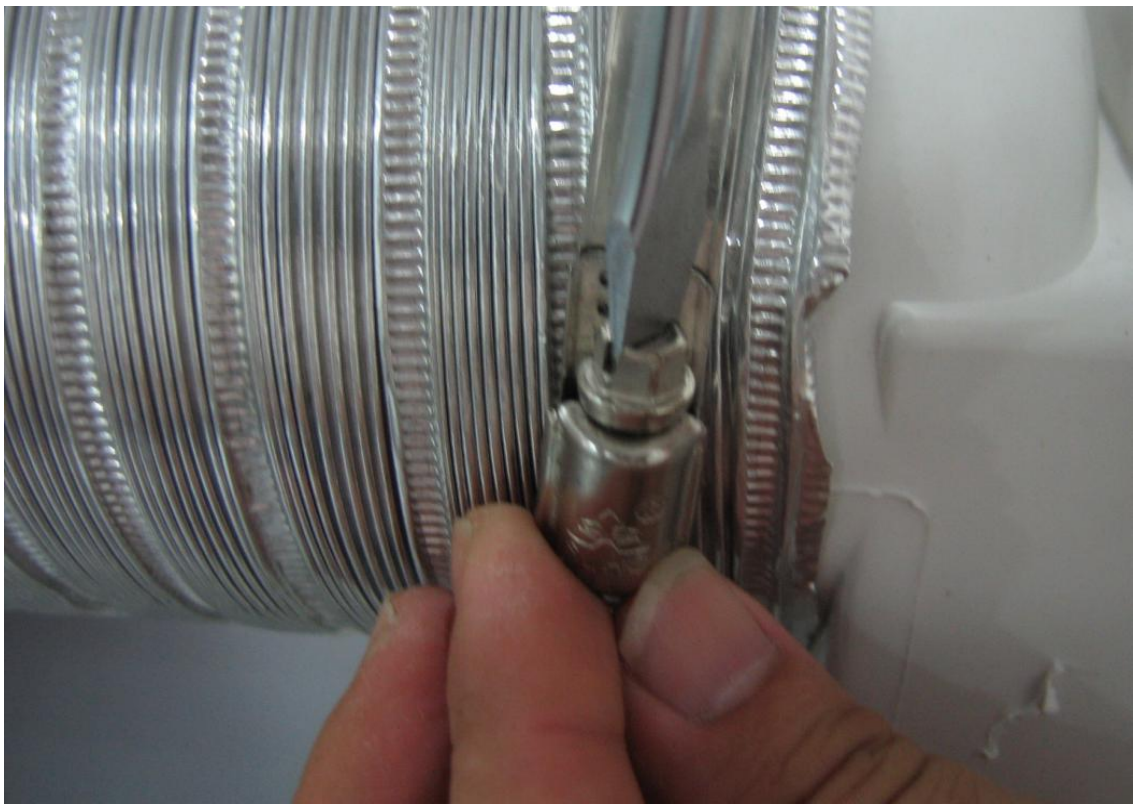
 Remove packing of mechanical parts of box machine.



- Internal wiring method.



- The connection of the exhaust pipe.



Note |: the minimum distance between the box and the wall >200 mm, to facilitate heat dissipation

三、 Installation, commissioning and operation of equipment

1、 Installation conditions of equipment

- The equipment needs to be installed in the table and ventilation cabinet.
- Table size :1500 long mmX 900 wide mmX high (600-800) mm
- Size :1200 long mmX 800 wide mmX 1400 mm high
- Installation distance from the wall :>200 mm is appropriate.
- Exhaust pipe diameter :100 mm.
- Recommended table height between 600-800 mm for easy operation.
- **Laboratory domestic demand is quite independent, and necessary exhaust system and fire fighting equipment.**

2、 Debugging of equipment

To confirm before commissioning:

- **Contact check: check that the wiring behind the electric box is correct,**
- **Install the exhaust pipe and tighten the head.**

3、 Drop test: adjust the appropriate drop.

- Prepare drops as required.
- Adjust reasonable drop interval and drop time.
- Adjust to the appropriate flow.
- **After obtaining the standard drop: drop interval =30-drop time.**

Some problems that need to be noticed in the droplet system:

- The solution should be used for 4 hours after preparation to ensure qualified conductivity.
- The solution needs to be completely dissolved before it can be added to prevent particles from blocking the pipeline.
- After the test is completed, the solution in the liquid cup should be finished and the pipe should be cleaned with clean water.

4、 Installation and adjustment of electrodes

- Adjust the lifting support so that the insulation pipe is in a horizontal position.
- mm electrode spacing distance was measured with 4 gauges.
- The current electrode pressure can be measured by dynamometer and the pressure can be changed by changing the weight position.
- Fix electrode screw.

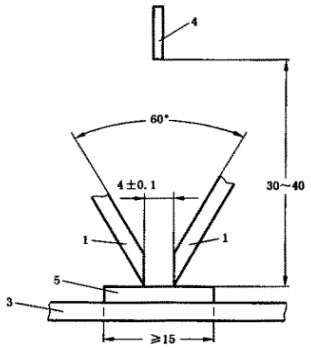
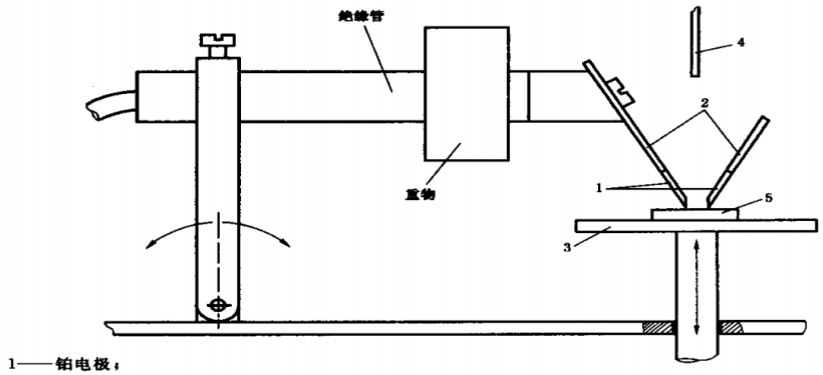


图 2 电极装置

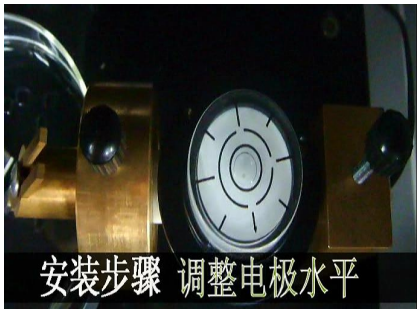
压力测试

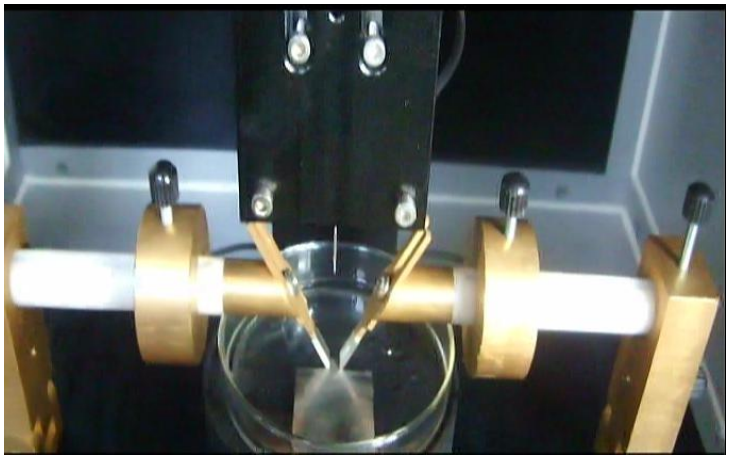
5、 Installation and adjustment of samples.

- Sample size: more than 15 mmX15mmX3mm, surface flat no foreign body.
- Place the sample in a glass dish supported by lifting.
- Adjust the lift support to the horizontal position.



1——铂电极；
2——黄铜引申部分；
3——支撑；



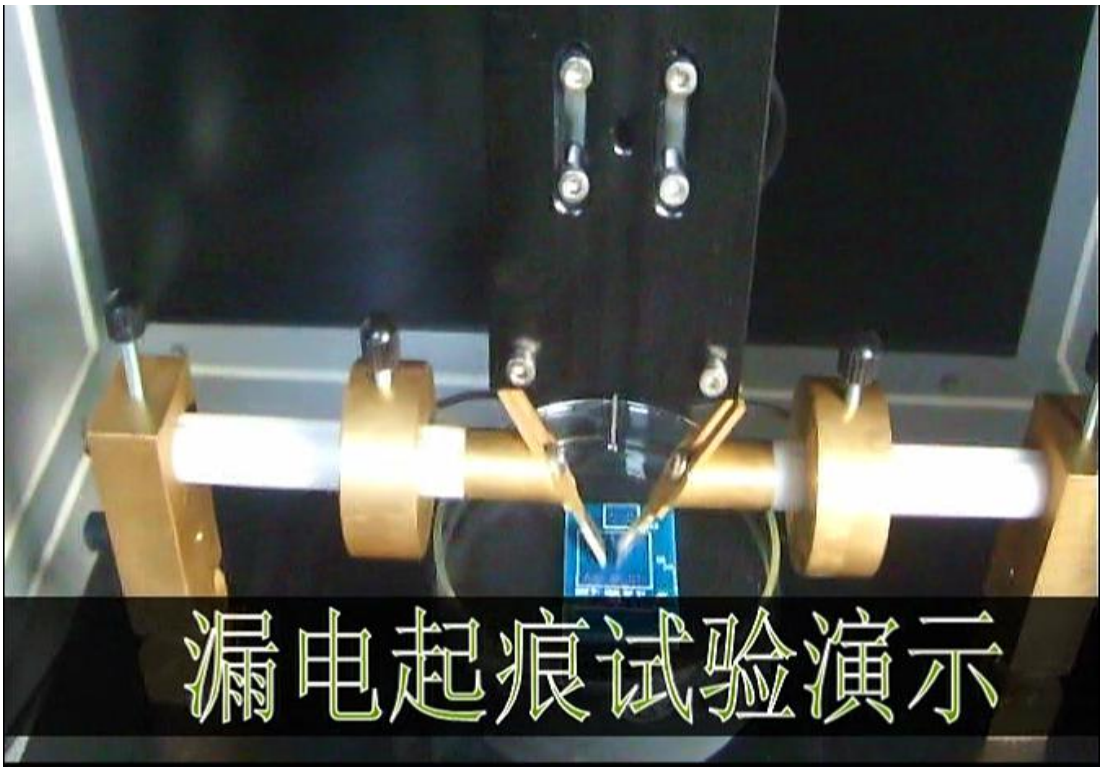


6、 Test process: after completion, close the observation window and enter the normal test procedure.

- When the door is closed, several function keys are added to the control system.

- First turn off the power supply and set the voltage to be tested.

- Change the voltage adjustment knob so that the actual voltage value is equal to the test voltage value.
- Press short circuit, adjust short circuit current to 1.00 A by current fine adjustment, close short circuit.
- According to the test, enter the test mode, if the current in the test more than 0.5 A lasting 2 seconds test automatically end.



Please pay attention to prevent electric shock, combustion or fire accident.
After the completion of the test, exhaust 2 minutes after opening the glass door to prevent the inhalation of toxic gases!

7、 Some descriptions of controls and procedures

- Drop interval; solenoid valve action interval.
- Drop time: solenoid valve opening time to control the drop.

- Automatic instrument protection procedures

- Timeout: the short circuit test automatically exits 1 minute, please adjust the current within 1 minute.
- Door guard: door opening can not enter part of the program or close part of the function that may cause danger.
- overcurrent: power off when system current exceeds 2 A.
- Overvoltage: When the adjusted voltage exceeds the set voltage ± 10 V, short circuit and test can not be performed

Attached figure: field test.

8、 Maintenance and maintenance of equipment

- At the end of the test, please clean up the samples and products

in time.

- If platinum loss is found, please correct it in time, and adjust the pressure and distance after correction.
- The solution should be used for 4 hours after preparation to ensure qualified conductivity.
- The solution needs to be completely dissolved before it can be added to prevent particles from blocking the pipeline.
- After the test is completed on the same day, the solution in the liquid cup should be put out. And add clean water to clean the pipe.
- Clean appearance of the equipment please use clean water wipe, do not use corrosive liquid.

Additional parameters for starting electrical leakage

Use caution by non-professionals

Reasons for adding this feature:

Since the voltage range of 100-600 V in the standard is not given a tolerance, the standard only mentions that the accuracy of the voltmeter is at least 1.5; the linearity of the voltmeter of the instrument has a 3-5 V error; in metering, the nominal value is different from the measured value. In the actual test process, how to know what the test voltage is?

Take an example: need to do 600 V test, the data of metrology institute shows 600 V measure 550 V, difference 50 how to do (if difference 50 V)? Test, if do 600 V test, actually did only 550 V test. How to know the current voltage? How to make the data displayed by the voltmeter more accurate? Two approaches are provided below:

Methods A: comparison method.

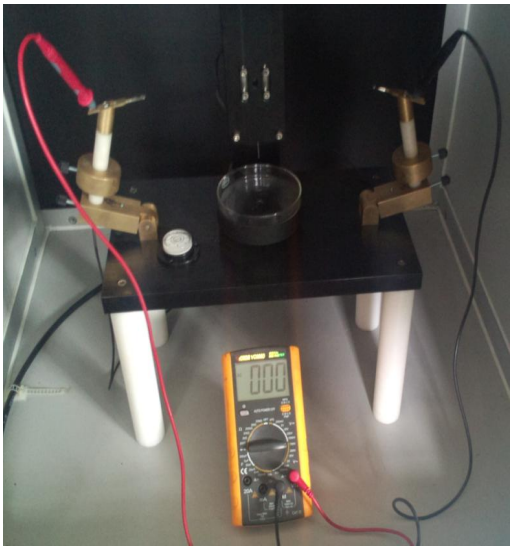
Use high precision (0.5%) multimeter to measure the local voltage, compared with the screen display voltage. If the power grid factors affect the voltage will jump, it is recommended to install 220 V voltage regulator.

Method B: recalibrate the voltmeter.

Method A The measured voltage is 500 V, the display voltage is 600 V. Can be recalibrated according to the following method.

1. Set the drop interval to 12,
2. Set the drop time to 34,

3. Press voltage value position 2 seconds, input multimeter accurate value, confirm by E.



Packing List of Leakage Trace Test

Name of name	Quantity
Platinum electrode	1 pair
Ammonium chloride	1 block
Glassware	1
Distance gauge mm 4	1
Electronic g 200	1
Exhaust pipe	Article 1
Smoke pipe buckle	2
Horizontal bubbles	1
Power cord	Article 1
Instructions	1

1. Scope of application

Applicable to the voltage below 600 V solid electrical insulation material resistance to electrical scar measurement.

2. reference standards

GB/T 4207-2003《 Method for Determination of Electrical Trace Index and Electrical Trace Resistance Index of Solid Insulation in Wet Conditions

IEC 60112-2003《Method for the determination of the proof and the comparative tracking indices of solid insulating materials 》

Safety of electrical appliances GB4706.1-2005《 household and similar uses - Part 1: General requirements ″

3. test equipment

Leakage mark test device, Vernier caliper.

4. test sample shape and size:

The test surface should be flat and free of scars. The surface area shall be such that the liquid does not flow out from the edge of the specimen during the test, and the size shall not be less than 15 mmX15mm and the thickness of the specimen shall not be less than 3 mm.

5. test instructions

5.1 The specimen has a flat surface of not less than 15 mm X 15mm, and the thickness of the specimen is greater than or equal to 3 mm; For specimens with a thickness less than 3 mm, two or more pieces may be stacked together for experiments;

5.2 The surface of the specimen shall be clean and free of dust, dirt, fingerprinting, grease, release agent or other contaminants which may affect the result. Care shall be taken to avoid causing material melting, softening, substantial abrasion or other damage when cleaning the specimen.

5.2 The electrode shall be cleaned before the test and if the edge of the electrode has been eroded, it shall be ground again;

5.3 Distilled water and ammonium chloride shall be used in the test solution with a ratio of 100 ml：0.1g±0.002; solution configuration completed

The resistivity of the solution should be 395Ω. in the environment of 23±1℃ by resistivity tester cm±5

Ω. cm.

5.4 Samples shall be placed horizontally on metal or glass support plates;

5.5 Fill in the test record with the condition of the prototype, the contents of the identification of the prototype, the thickness of the sample and the relevant technical parameters.

5.6 The specimen shall be placed without ventilation and tested in an environment of 23℃±5℃.

6. test method

6.1 Adjust drop needle height to 30~40 mm, Set drop time interval to 30±5

6.2 Wipe the needle and remove 5~20 drops of solution to ensure the accuracy of droplet size and solution concentration;

6.3 Turn on the power supply of the instrument, short circuit the poles, alarm, alarm current greater than 0.5 A. If not greater, the current should be adjusted and connected again until the current reaches A;0.5

The two electrodes are symmetrically placed in a plane perpendicular to the horizontal specimen plane at an angle of 60℃ and a distance of 4 mm; between the two electrodes

6.4 Set test voltage according to product standard material set;

6.5 Start the test switch and record the test phenomena and test time;

6.6 Tests shall be repeated five times at five different points.

Evaluation of 7. test results:

Five test sites should withstand 50 drops of solution without forming a 0.5 A conductive path or the specimen should not burn.

8 Notes

8.1 The test shall be conducted under ambient conditions of no air flow and temperature of 23±5℃;

8.2 After the test, the remaining solution shall be discharged and the dripping needle and test tube shall be cleaned with distilled water to clean the test residue.