

## HST-ART15 Arc resistance tester



### I 、 Compliant standards

GB/T1411-2002 《Dry,solid insulating materials-Resistance test to high-voltage, low-current arc discharges》（Equivalent to IEC 61621-1997）and ASTM D495 and other standards; comply UL 746Aand other test methods.

## II、Application

HST-ART15 Arc resistance test system is a high precision equipment specially developed for the test of electrical insulation materials, it's suitable for electric insulation materials, plastics, film, resin, mica, ceramics, glass, insulating paint and other insulating materials arc resistance evaluation, it can also be used in product testing and research of electrical properties of new materials.

## III、Functional principle

Insulation materials have the ability to resist deterioration caused by high voltage arc action, usually a standard arc flame is used to induce carbonization on the surface of the material until the surface is conductive. The time required for the arc to disappear is expressed in second. Add two tungsten electrodes separated by a certain distance on the plate sample, at first the arc is intermittent, then gradually shortened, and finally continuous arc with gradually increasing current, the material is subjected to increasingly severe arc conditions and eventually fails. Arc resistance is important for insulating materials used in high-voltage switches or low-voltage high-current switches, because the switch is often affected by arc when it is opened and closed, only materials with good arc resistance can be selected.

Insulating material used in the interior of electrical and electronic equipment, when exposed to a high-voltage, low-current arc discharge, is tested the differences in surface damage close to the arc. The arc discharge causes local thermal and chemical decomposition and corrosion and eventually forms a conductive channel on the insulating material, When a conductive channel is formed in the tested material, the material can be determined to have failed.

Arc resistance tester is GB1411, IEC61621, ASTM C495, UL746A and other standards of the simulation safety test project necessary special instrument.

The arc resistance tester is composed of electrical schematics and electrodes according to the following standard requirements

### Equipment parameter

- 1、Arc on/off time error: All program segments are superior  $\pm 1\text{ms}$
- 2、Voltage regulator capacity: 1kVA
- 3、Rated test voltage: 12.5kV  
Maximum test voltage: 15kV
- 4、Test voltage accuracy:  $< 1.5\%$
- 5、Current measurement accuracy:  $< 1.5\%$
- 6、Electrode pressure on sample:  $(0.5 \pm 0.05)\text{N}$
- 7、Electrode material: Tungsten bars
- 8、Distance between electrodes:  $(6.35 \pm 0.1)\text{mm}$  (IEC)  $(6.0 \pm 0.1)\text{mm}$  (ASTM)
- 9、Ambient temperature:  $(23 \pm 2)\text{ }^{\circ}\text{C}$

10、Ambient humidity: (50±5) %

11、Power supply: 220V±5% 50Hz 10A

12 Equipment weight: 58kg

Packed weight: 80kg

13 Equipment dimension:(L\*W\*H)670\*660\*590mm Packed dimension: 780\*770\*830mm

| Program segment | Arc current mA | Arc on & off time /s |                  | Duration of each program segment/s | Total test time/s |
|-----------------|----------------|----------------------|------------------|------------------------------------|-------------------|
|                 |                | IEC 61621            | ASTM D495        |                                    |                   |
| 1               | 10             | 1/8son 7/8s off      | 1/8son 7/8s off  | 60                                 | 60                |
| 2               | 10             | 1/4s on 3/4s off     | 1/4s on 3/4s off | 60                                 | 120               |
| 3               | 10             | 1/4s on 1/4s off     | 1/4s on 1/4s off | 60                                 | 180               |
| 4               | 10             | Continuous power on  |                  | 60                                 | 240               |
| 5               | 20             | Continuous power on  |                  | 60                                 | 300               |
| 6               | 30             | Continuous power on  |                  | 60                                 | 360               |
| 7               | 40             | Continuous power on  |                  | 60                                 | 420               |

## VI、Standard Configuration

|   |                                          |       |
|---|------------------------------------------|-------|
| 1 | Arc resistance tester host machine       | 1     |
| 2 | Electrode system                         | 1 set |
| 3 | Power cable                              | 1     |
| 4 | Standard electrode spacing measure block | 1     |
| 5 | Angle standard block                     | 1     |
| 6 | Product Ex-factory report                | 1     |
| 7 | Sample stand                             | 1     |
| 8 | Operation instruction                    | 1     |
| 9 | Packing list                             | 1     |

**Note:** All instruments and equipment need to be grounded and the grounding resistance is  $\leq 4\Omega$ . , The supply and demand sides agree that the supplier should provide technical requirements and the demander should build the grounding system by itself.

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