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TESTING EQUIPMENT AS PER UL 746A

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WORKS 1: W-188 (B), Phase II, M.I.D.C., Dombivli (E) Dist. Thane - 421204. Maharashtra, INDIA
WORKS 2: W-224 (C), Phase II, M.I.D.C., Dombivli (E) Dist. Thane - 421204. Maharashtra, INDIA
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1. Dielectric Breakdown Voltage and Strength Test Equipment:



The test method for the determination of the dielectric breakdown and strength of insulating materials is described in the Standard Test Methods for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies, **ASTM D 149-81**

The object of the test is to apply a stipulated High Voltage between Live & Earth of the equipment under test. The apparatus has arrangement to control the voltage from zero to its rated maximum by means of the knob.

And Voltmeter to indicate the magnitude of the High Voltage. Test voltage can be increased gradually to the desired value without a sudden surge on the equipment under test. If the Insulation breaks down, the High Voltage Supply is immediately cut off in order to prevent further damage to the equipment under test or to the testing unit.

Features and Specifications:

- 1. Voltage Range: 0 to 100kV/100mA AC
- 2. Tripping Current : 5mA/10mA/25mA/50mA/100mA.
- 3. Digital meters to indicate leakage current and High Voltage
- 4. Visual as well as audible indication for High Voltage ON.
- 5. HT OFF/FAULT/HT ON" indications on lamp.
- 6. Separate Trolley for High Voltage Transformer.
- 7. Test Chamber with Safety interlocks
- 8. This equipment can be customized as per user specifications (kV, mA). And can also be customized with Micro controller based or PC based.

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2. Dry Arc Resistance Test Equipment:



The test method for the determination of the effects of high-voltage, low-current, dry arc resistance of solid electrical insulation is described in the Standard Test Method for High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation, **ASTM D 495-84.**

This equipment is made to test the electrical insulating material by exposing it to Arcing under high voltage. The test specimen is placed under electrodes, spaced at a distance of 6.35mm as per ASTM D 495

An Arc is generated between these electrodes. The test consists of 7 Cycles . The test specimen that has lower insulating strength fails earlier in the first few cycles while those with higher insulating strength sustain higher cycles.

- 1. Adjustable Test Voltage 15 KV
- 2. SIEMENS make HMI system with touch screen operation to set the test parameter and control the sequence.
- 3. The unit is programmed to operate in 7 cycles. Each cycle will be for duration of 60 seconds.
- 4. Test chamber with Door Interlock System to protect user from direct contact of High Voltage
- 5. Emergency OFF provision.
- 6. This equipment is available in PC based and PLC based system.

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3. Tracking Index Test Machine:

The test method for determining the comparative tracking index of electrical insulation materials – which is the voltage, as determined under the conditions specified in the



Standard Test Method for Comparative Tracking Index of Electrical Insulation Materials, ASTM D 3638-85 (IEC 60112), that causes a permanent electrically conductive carbon path with the application of 50 drops of electrolyte that is applied at the rate of one drop every 30 seconds to the specimen. This test is used as a measure of the susceptibility of the material to tracking.

This equipment is available in PC based and PLC based system.

- Test Voltage –100 to 600 VAC, adjustable (Option = 1200V AC)
- Electrode Voltage Setting 0 to 230V, 0 to 450V, 0 to 650V, 0 to 850V, 0 to 1070V, 0 to 1280V adjustable.
- Tripping Current preset at 0.5 Amps. With 2 sec lag, and short circuit Current limit setting at 1 Amps.
- Short circuit release 0.5 A for 2 Sec; Short circuit current limited to 1A
- Siemens make Logo PLC unit to set and control the test sequence.
- Digital Meters to read test voltage and current.
- Cover open interlock switch for additional safety.

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4. High Voltage Inclined Plane Tracking and Erosion Test Equipment:



The Test Method for Liquid Contaminant, Inclined-Plane Tracking and Erosion of Insulating Materials, ASTM D 2303 is used as a measure of the susceptibility of a material to track.

As per ASTM D2303, insulating material should withstand against tracking & Erosion on the field. Which why they are evaluated in a laboratory by means of liquid contamination in a particular arrangement. The equipment displayed herewith are used for the same purpose.

A high voltage is applied between two electrodes and a liquid contaminant is used in between so as to check & measure tracking. We offer this system in various configurations based on your application – R&D or Compliance Test & Assessment. The routines/measurements that can be conducted by this equipment are:

- Initial Tracking Voltage
- Time to track
- Erosion

Features and Specifications:

1. Microcontroller based programmable logic controller" to carry out test sequence

- 2. Specially designed electrodes as per product under test.
- 3. Output voltage: Regulated 100 V to 7500 V AC programmable.
- 4. Tripping current setting: 30 mA & 60 mA
- 5. Series ballast selection 1 k, 10 k, 20 k and 50k with link.
- 6.Liquid deliver capacity: 0.075 ml/ min to 0.900 ml/ min ,programmable.
- 7.Test chamber: UV protected Glass door with door interlock.

8.The equipment can be customized as per number of stations 1, 2, & 5 and can also be customized with Micro controller based or PC based.

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5. Hot Wire Ignition Tester



The test method for the determination of resistance to ignition of plastic materials from an electrically heated wire is described in the Standard Test Method for Ignition of Materials by Hot Wire Sources, **ASTM D 3874-88**

As suggested by the standard, Heated Wire Tester is designed to evaluate a material's ability to resist ignition when exposed to abnormally high temperatures.

- 1. Variable Current Source : 0 to 10Amps at 20V max.
- 2. Microcontroller based Timer is provided to control the test sequence.
- 3. Digital Meters are provided to indicate voltage and current values
- 4. Emergency OFF provision.
- 5. Elegant design with aluminium extruded profile.

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6. High Current Arc Ignition Test Equipment



High-Current Arc Ignition Performance Level Category (PLC) is to be assigned based on the mean number of arcs to cause ignition.

This test is necessary because insulating materials might withstand normal current but fail when a high current accidentally passes. Based on the time to fail up to 300 seconds, UL 746 A categorizes the insulating material.

- Material of the products can be checked by continuous cycle by passing high current through the materials.
- The adjustable current source is 230V AC @ 40AMP.
- The load is adjusted to get 33.0 A at 0.5 Power factor across the DUT using Variac
- Siemens make LOGO PLC to control the test sequence.
- Test chamber with Safety Interlock Switch.
- Protection for Over Load Trip.
- Emergency OFF provision.

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7. Glow Wire Test Apparatus



The test method for the determination of ignitability of an insulating material from an electrically heated wire is described in the Method for Glow-Wire Ignitability Test on Materials, IEC 60695-2-1/3

As per IEC 60695-2-10 parts of solid insulating materials are ignited by glowing wires. A nickel/chromium wire is heated to 960°C and the insulating material is pushed against it with a force of 1 Newton. It is checked that the insulating material does not attain a certain temperature or catches fire so as to prevent fire hazard in their vicinity.

- Self-adjusting constant current mode operation as soon as heater-specimen contact is established.
- A motorized sliding carrier with a universally adjustable SS mesh
- Nickel / Chromium based heating element (glow wire)
- Cr/Al based fine wire based thermocouple for temperature sensing
- Temperature Range: Adjustable up to 960° centigrade
- Time setting 0 to 99.9 seconds
- The equipment is available in Micro controller based or PC based System.

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8. Ball Pressure Test Apparatus



This is designed to test material distortion under load.

This test determines the amount of penetration that occurs with a given material when a standard force of 20 ± 2 N is applied, through a 5-mm spherical surface, at 75°C, 125°C.

Enclosures and other external parts of devices made of insulating material, other than those of ceramic material are tested with this equipment.

- The test is made in a heating cabinet at a temperature of 75 +\- 2 Deg. C. or at a temperature which is 40 +\- 2 Deg. C. in excess of the temperature rise of the relevant part determined during the test
- Magnifier with built in scale for measuring the impression of the steel ball precisely.
- All stainless steel construction.
- Ball Diameter is 5 mm.

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CUSTOMER REFERENCE LIST:

Sr. No.	Customer	Location
1	UL India Pvt. Ltd.	Bangalore
2	GE India Industrial Pvt. Ltd	Bangalore
3	Electrical Research and Development Association (ERDA)	Vadodara
4	Intertek India Pvt. Ltd	Mumbai, Bangalore
5	Larsen and Toubro Limited	Coimbatore, Ahmednagar
6	Central Power Research Institute	Bhopal, Bagalore
7	IDEMI	Mumbai
8	Siemens Ltd	Kalwa
9	Havells India Limited	Baddi, Haridwar, Noida, Alwar
10	National Test House	Chennai
11	Central Institute of Plastics Engineering and Technology	Jaipur,
12	Hi-physix Laboratory India Pvt. Ltd.	Pune
13	Polycab India Ltd.	Nashik
14	Crompton Greaves Ltd	Mumbai
15	Raychem RPG Pvt. Ltd.	Kanjari
16	Apar Industries Ltd.	Valsad
17	Kkalpana Industries (Ddev Plastiks Industries Ltd)	Silvassa

We do manufacture the testing equipment as per IEC 60947, IEC 60898, IEC 61008, IEC 69695, IEC 60335 etc. Also ASTM ,IS, BS, EN, DIN Standards

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