TEST FOR ELECTRICAL CHARACTERISTICS

Type: ANTISTATIC DISSIPATIVE SCREWDRIVERS

Articles: SCREWDRIVER KBL30FR + EDU1BL
SCREWDRIVER PLUTO10D/N + EDU2AE/HP

Company: KOLVER s.r.l.
Via Marco Corner, N° 19 – 36016 THIENE (Vi) – ITALY

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KOLVER SCREWDRIVERS

KOLVER ELECTRIC SCREWDRIVERS are last generation electric screwdrivers, which prevent static electricity formation in EPA working areas (ESD Protected Area)

DEFINITION OF EPA AREA

An EPA Area is an electrostatically protected area which can be found in different industrial areas and is specially set up for applications requiring the control of static electricity or of induced disturbance caused either by means and people.

Equipments operating in such areas must have an effective grounding to avoid generation of EOS (Electric OverStress) disturbances, which are generally caused by an improper grounding which originate a difference of potential among the various parts.

Electrified equipments AC (Alternate Current) must have an impedance to ground < 1,0 ohm for the fixed parts; while for movable parts the tolerance is up to < 2 ohm.

KOLVER SCREWDRIVERS have been submitted to a series of tests, following the regulations that state what requirements and testing methods must be considered when testing electrostatic properties.

Such regulations specify how to avoid accumulation of electrostatic potential, which is dangerous for both people's safety and the quality of processes.

1. Electrical resistivity to ground between screwdriver and its housing

This test determines if the degree of conductivity of the housing is effective enough for equipotential grounding.

Resistivity Rs/Rv ~ 2,50 x 10^7 Ω

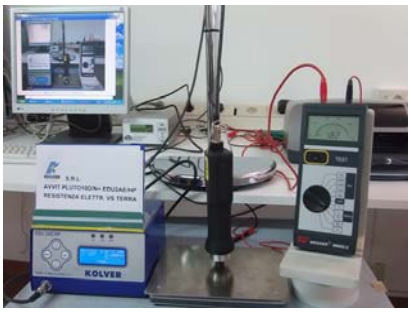
2. Electrical resistivity to ground of the housing (safety for electrical devices)

This test is carried out to determine that the electric resistivity is not below the following range: > 1 x 10^7 Ω < 5 x 10^9 Ω to guarantee primary grounding and safety for the operator.

Resistivity of electrical safety ~ 5 x 10^7 Ω

3. Electrical resistivity to ground of the screwdriver

This test is carried out to determine the resistivity to ground of the electrified parts.
(The measurement of the electrical resistivity to ground of the electrified core of the screwdriver is obtained by linking the core to the plate below. The plate is linked to the ohmmeter with 0 Ohm as resistance threshold).

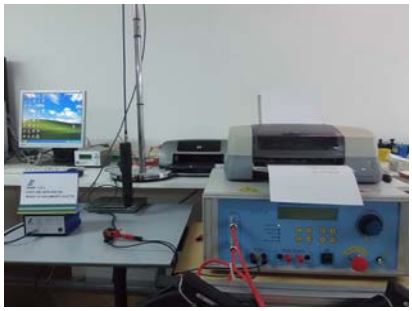


Electrical resistance to ground Static test
Resistance to ground of the electrified parts
< 1,0 ohm

Electrical resistance to ground Static test
Electrical resistance to ground Test in motion

4. Resistivity of electrical isolation

This test is carried out to determine that no superficial or disturbance electric discharge happens, when the electric parts of a tool are subdued to 500 or 1000 V for 60 seconds.



RIFERIMENTO PROVA: TEST
PROVA RESISTENZA ISOLAMENTO IN DATA 19/04/13
500V 50.00 MOHM
N. CAMPIONE ORA RESISTENZA

1 16:02 200.0MOHM BUONO

RIFERIMENTO PROVA: TEST
PROVA RESISTENZA ISOLAMENTO IN DATA 20/04/13
1000V 180.00 MOHM
N. CAMPIONE ORA RESISTENZA

1 13:22 200.0MOHM BUONO

Certificates above issued from the tester

5. Charge decay time

This test determines how long the screwdriver takes to dissipate to ground the electric potential on the operator's body.

Charge decay < 0,5 sec.

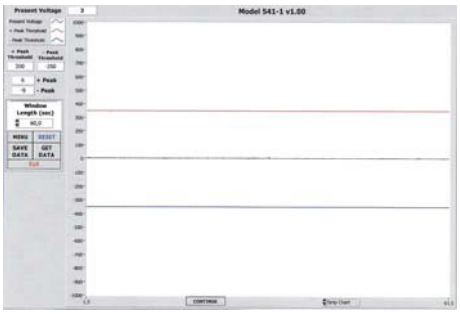
6. HBM (Human Body Model) Resistivity

This test is carried out to verify the electrical continuity among the parts of the screwdriver and its equipotential resistance to ground. As a consequence further earthing systems are made useless (ex wrist band).

HBM (Human Body Model) Resistivity ~ 1,30 x 10^7 Ω

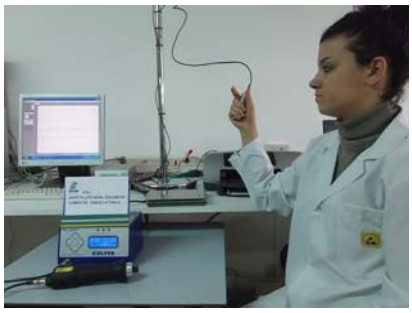
7. HBM (Human Body Model) triboelectric compatibility

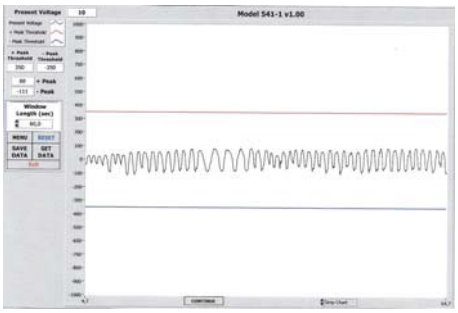
This test determines that the screwdriver is capable of eliminating any kind of electric overstress interference as the operator holds the tool.



HBM Triboelectric compatibility – Operator holding screwdriver and probe

The screwdriver in the operator's hands is a primary grounding which eliminates any EOS (Electric OverStress) interference.





HBM Triboelectric compatibility – Operator holding probe only

The probe in the operator's hand produces a triboelectric effect which is not allowed in an EPA (ESD Protected Area) area – (i.e. the screwdriver is a primary grounding which eliminates any EOS (Electric OverStress) interference).

CONCLUSIONS

For their electric and electrostatic characteristics conforming to the ANSI EOS/ESD S6.1 standards, the tools KBL30FR + EDU1BL and PLUTO10D/N + EDU2AE/HP are suitable for use in EPA area (ESD Protected Area), where a rigorous control of interferences by means or people is required.