Production Line Testing

One of the areas of confusion that often exists at the time of the first Follow-up Factory Audit or Initial Factory Assessment & Product Inspection (IFA) for use of the ETL Listing Mark is the issue of Production Line Testing. As a requirement for ETL certification the manufacturer shall conduct regular production line tests in the factory on all products as described in the ETL Listing Report. It is extremely important that you be aware of this requirement now, rather than at the time an Intertek Field Representative arrives to conduct the IFA. If you do not know if the Listing Report (the descriptive report of your product) will require such Production Line Testing, ask your evaluating engineer to explain this to you.

The most common types of Production Line Testing that are required are Dielectric Withstand (sometimes called, "Hi-Pot"), Grounding Continuity, and Pressure Tests. In all cases, prior to purchasing new equipment, you should determine the usage, requirements, demand, and calibration of such equipment.

**Dielectric Withstand**
Equipment should be of sufficient size to accommodate the voltage demands of the equipment and electrical ratings of the product to be tested. The equipment should be capable of generating a test potential of the value required by the standard and should have a meter or other means to determine the set voltage value. It should have an audible and/or visual indicator of dielectric breakdown. You should make sure that the equipment is ordered pre-calibrated and traceable to national standards. Some manufacturers sell dielectric equipment that will arrive not having been calibrated.

Intertek recommends that Dielectric Withstand equipment be checked for sensitivity at the beginning of each production day or shift. One such method is to use a 120,000 ohm resistor. Upon applying the required test potential while loaded with this resistance, the test equipment should indicate unacceptable performance within 0.5 seconds. When ordering a Dielectric Withstand test machine, such a resistor may be ordered with the machine.

**Grounding Continuity**
Products may be evaluated by any current checking meter or equipment able to show electrical conductivity (including a pilot lamp) test for continuity of the grounding path between the ground pin on the attachment plug cap or ground wire and the exposed dead metal cover or housing of the product. All meters or other means should be capable of being calibrated.

**Pressure Tests**
Some HVAC equipment standards require pressure testing.
The issue of calibration is an often asked question. The policy of Intertek is that if Production Line Test equipment is required by your Listing Report, then all such equipment should be kept in current calibration. Evidence of such calibration is required to be shown to the Intertek Field Representatives or Inspectors performing Factory Audits for ETL Listing Mark use. Acceptable evidence should be the presentation of a calibration certificate showing traceability to the National Institute of Standards and Technology in the United States or, for manufacturers outside the U.S., traceability to the national standards body of that country. Calibration stickers on the equipment are a good reminder but are not evidence of compliance with these requirements. All equipment specified by the Listing Report and used in Production Line Testing should be calibrated at least once per year. Self-calibration within the company is acceptable so long as the equipment used shows the same traceability as detailed above.

If there are any further questions or concerns on Production Line Testing, please contact:

**Intertek Certification**
545 E Algonquin Road
Arlington Heights, IL 60005

Phone: 312-906-7801

http://www.intertek.com