

Seven Steps to a Good Spark Test

A proper spark test at each critical point in the wire manufacturing process can greatly reduce scrap and improve profitability. Here are seven steps to insure you are finding the defects in your product:

1. Use the correct spark tester and electrode.

Clinton offers several types of spark testers and a wide range of electrodes, each designed for a particular product type. For instance, round wire tested to a UL spec must use a bead chain electrode; brushes are UL-approved for flat or irregularly-shaped product only.



UL specs also state that faults must be detected at least every 24", so a wire line running faster than 3000 FPM requires a spark tester with fast fault resolution capabilities and a longer bead chain electrode.

2. Ground your product. DC testing requires grounding for a proper spark test; and while high frequency testing theoretically works under optimum conditions without grounding the conductor, most test standards, including UL, mandate product grounding for reasons of operator safety.

3. Make sure your test product is dry. Water on the wire can cause false counting, cause printers and other devices to malfunction, and even damage your spark tester. High quality air wipes and other wiping devices are available from Clinton.



4. Test at the right voltage for your product. See your test standard for the correct setting. If you are using a high frequency spark tester and do not know the correct test potential, you can find it with a simple experiment, which establishes the lower limit (where ionization or *corona* begins to occur in the electrode) and the upper limit (where the insulation fails). The right test voltage will be somewhere between these limits. Please ask for the Clinton paper, "Selection of 3kHz spark testing potentials for insulated wire," for more information on this process.

5. Maintain your electrode regularly.

Replace beads or brushes that are dirty or worn. Wire bouncing around between bent, filthy brushes or through a hole in your bead chain electrode is not being tested properly, since a much greater test potential is needed to bridge a large air gap. Electrode mounting plates with evidence of tracking should also be replaced.



6. Stabilize your wire as it runs through the electrode. Some products, especially smaller wire running at very high speeds, are prone to an almost invisible lateral vibration that can cause false counting. A series of wire guides positioned before and after the electrode can reduce or eliminate problematic vibration.



7. Calibrate your spark tester on a regular basis. Since industry standards require that the calibration equipment be five times more accurate than the equipment to be calibrated, the new Clinton HF-CAL or an electrostatic voltmeter is recommended for voltage calibration of 3kHz high frequency spark testers.

Product News

HF-CAL High Frequency Calibrator

Clinton introduces a portable, easy-to-use calibration system for Clinton High Frequency Spark testers, eliminating the need for the cumbersome electrostatic voltmeter. The HF-CAL accurately checks the output voltage in a matter of minutes. It also includes a troubleshooting probe that compares your spark tester's fault detection sensitivity to current factory standards.

The HF-CAL can save you time and money by eliminating outside calibration services and complicated in-house procedures.



Product News continued...

Fault Sensitivity Probes

We have designed two new fault sensitivity probes which verify the integrity of the fault circuitry on our HF and DC spark test systems.



HF-SP High Frequency Sensitivity Probe
DC-SP DC Sensitivity Probe

By grounding the probe lead to the test module chassis and drawing an arc from the electrode at 3KV, one can do a simple sensitivity spot check on Clinton high frequency or DC spark test systems.

The equipment verifies that the fault sensitivity circuit of the spark tester meets the Clinton bench standard. (It doesn't eliminate the need for the CAL-100 for NEMA and BSI calibration requirements.)

Model STS

The STS High Frequency Spark Test System is a complete system designed to meet the needs of distributors and harness houses.

The system includes an HF-20GA control unit, HF-20G02A test module with bead chain electrode, connecting cable and a heavy duty floor stand.



Sales Organizations

Clinton Instrument Company is proud to announce that Dave Carroll has been promoted to Technical Sales Manager, Wire and Cable Products. In his new role, Dave will be responsible for the day-to-day sales management of our wire and cable group. Dave recently distinguished himself at Wire Focus 2001 in Orlando, Florida, delivering a speech on spark testing basics.



Our Website

Our website has been upgraded over the past few months. Soon all product data sheets will be available for download in .pdf format. Feel free to use the on-line product questionnaires that can help us determine the correct equipment for your application. Emailing our technical team is much easier, too. Visit Clinton Instrument at www.clintoninstrument.com.

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