

While the path of the capacitive current is slightly longer than the straight line surface leakage path, the defect is still readily detectable. As the diameter of the tool increases the current path may also increase. If the diameter gets larger, or the defect gets further from the outside, the change in the length of the leakage path can become excessive when compared to the length of the straight line leakage path across the surface. For this reason, it is desirable for the distance between the electrodes to be at least twice the diameter of the tool being tested. Since most hot line tools are 3 inch diameter or smaller, we designed our tester to have an electrode spacing of 6 inches. The electrode spacing may not be apparent if you only examine the outside of a portable tester.

While a full scale test is always an option, there are several disadvantages associated with it. As we mentioned earlier, the resolution with electrodes spaced one foot apart is less than the resolution with closer spaced electrodes. But larger problems are associated with the elevated voltage levels. Metering is more of a problem as the higher voltage also results in more energy being available should the tool flash over. Since the current is being monitored, the flash over will take its toll on the meter. There are various schemes to protect the meter and all I will say about that is that some of them will work some of the time. Even if you don't blow your meter, you will most certainly be putting the tool at risk.

We have heard from several customers who have ruined tools by flashing them over due to poor surface finishes. These tools could have been waxed or refinished to make them serviceable again but because of the power unleashed at the instance of flash over, the tool was burned and/or small fiberglass slivers were blown out in the vicinity of the electrodes, making a major repair or retirement of the tool necessary. One customer now uses a portable tester to screen his tools prior to full scale testing.

Operator safety, convenience, and the time to complete the test are also more of a problem with full scale testing.

When talking about full scale testing, we believe that the choice of A.C. or D.C. is more of an operator preference. Both have advantages and disadvantages. When a reduced voltage is used, we feel it is necessary for the applied voltage to be A.C.. To produce a leakage current when there is not a solid conductive path between the electrodes, we need the capacitive effect offered by A.C. to get the most critical test results. This also allows us to "see" inside the fiberglass and to detect problems that are insulated from the electrodes by good fiberglass. D.C. will not allow this. As I mentioned earlier it is important to keep the electrode spacing as close together as possible for maximum surface sensitivity. For maximum internal sensitivity it is important not to reduce the spacing below twice the diameter of the tool being tested.

If you want additional information on the tester that was designed not only to meet the OSHA rules but to give you additional information about the quality of the tools being tested, please contact us.

Our purpose at HASTINGS is to serve you, the customer, in the best manner possible and to provide for your needs. Please do not hesitate to contact our factory representative in your area or the factory for any of your needs. Our research and development talents and manufacturing capabilities are available to you from concept to the finished product.

Thank You.