How to carry out Manufacturing Safety Testing?

Good practice, and as required by the majority of manufacturing and quality standards, would be to perform the production line electrical safety tests on all manufactured goods. Safety is an absolute and only 100% testing can categorically can show 100% conformance.

The testing should be carried out at the point at which the product is complete, however it may be necessary to perform the test at a slightly earlier stage if it is not practical to do so when finished. In this instance the testing should be performed at the nearest possible stage to completeness and where further assembly after completion will not compromise the electrical integrity of the product under test.

It is always recommended that any Electrical safety testing is performed prior to operational testing. Performing testing in this order ensures that the unit is safe for operation prior to applying mains power, particularly if the operator is to perform any changes in functionality that will result in contact with the item under test, i.e pressing buttons.

The order of the safety testing process should also be considered carefully, particularly for items which rely on an Earth (ground) for safety. The Earth bond test should always be performed first, as in many connection methods the Earth cable then becomes part of the measuring circuit for the Dielectric tests. If the earth were not connected, but expected to act as the return for any leakage current, and a dielectric test were to be performed, the unit would likely read a very low or zero current flow, even if

a dangerous fault were to exist.

It is therefore recommended to follow the test flow as below

1) Earth Bond Test

2) Electric Strength Test (AC/DC Hipot or Insualtion Resistance)

3) Functional Testing

Due to the nature of the testing and the high voltages present, it is also advisable to create a safe working area in which to perform the Testing. In addition to our production line test equipment, Seaward have a range of accessories and guidance to aid manufacturers in creating a safe electrical environment for Hipot Testing

If you require more help, please contact us at https://www.seaward.com/gb/enquiry/.