

A new method to investigate electrical conduction in crimp joints

Influence of the compaction ratio and electrical model

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Abstract

The principle of electrical contact by open barrel crimp is known and applied since a long time, above all in its “B” style shape. To realise this kind of electrical connection, a conductive wire is stripped and put into a contact element with open wings, then the wings are closed on the conductive strands by a “punch/anvil” system. According to the depth to which the punch falls, strands are more or less squeezed, and this is evaluated by the “section reduction ratio” parameter. The object of this work is first of all to describe an original experimental method to characterise the electrical behaviour of the crimp. This approach allows to measure apparent inter strand and strand/barrel contact resistance values. Next, the influence of compaction ratio on the resistance distribution is investigated. Finally, a crimp model and an inverse method allowing to determine the real contact resistance values from the apparent ones are proposed.