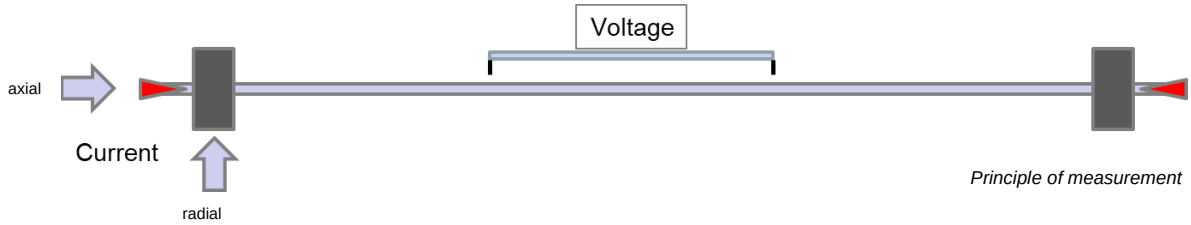
Flat Axial injection

an option that significantly improves the measurement of large aluminium conductors

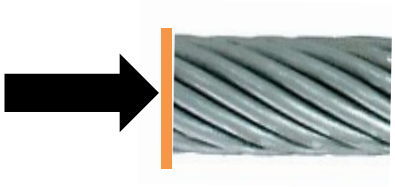


Principle of measurement

DESCRIPTION

AESA has developed a new patent filed method of measuring the linear resistance of electrical conductors by axial current injection. It provides manufacturers with an important advance in the measurement of metal conductors. It pushes back the limits of traditional methods while providing a significant improvement in measurement reliability.

Rather than injecting it transversely, current is injected axially via a dedicated conductive pad. In this way, each wire in the conductor is in direct contact with the current source, thus minimizing the contact resistance effect between wires. As a result, the accuracy and reliability of the measurement is significantly enhanced.



axial injection patented filed method

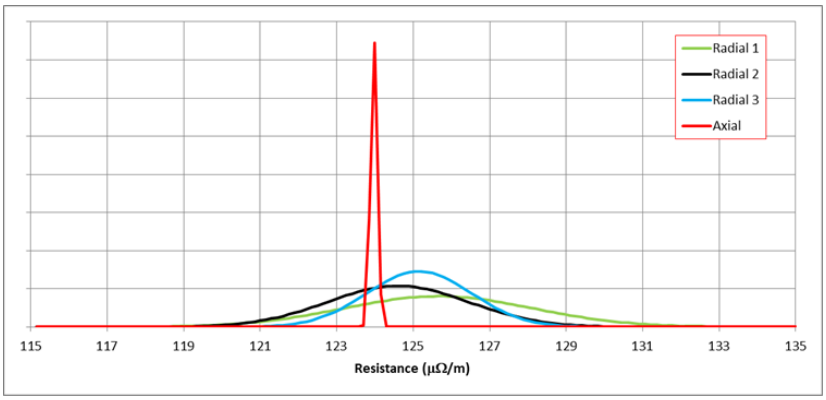
KEY FEATURES

- Accuracy significantly enhanced
  - each wire is in contact with the power source
  - the measurement is significantly less affected by aluminium oxidation
  - Kelvin method (4 points) according to the standard IEC 60468
- Opens up new possibilities
  - for aluminium conductors
  - for very large cables cross sections
  - considerable improvement of results for waterproofing cables (e.g. Aquablok, Milliken, grease,…)
- Compatible with latest versions of AESA equipment
  - Non compatible devices may be upgraded.
- User friendly
  - Both modes available on the same unit (axial & radial)
  - The software manages the injection and measuring mode

AESA Cortaillod

KEY BENEFITS

In cases that the scattering of the measurements is too high, axial injection improves their reproducibility and accuracy considerably (red curve in the image below).



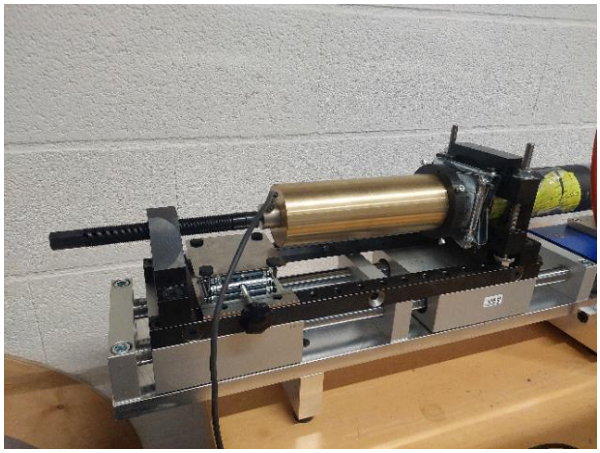
Improved accuracy demonstrated by the distribution of reproducibility measurements

TECHNICAL SPECIFICATIONS

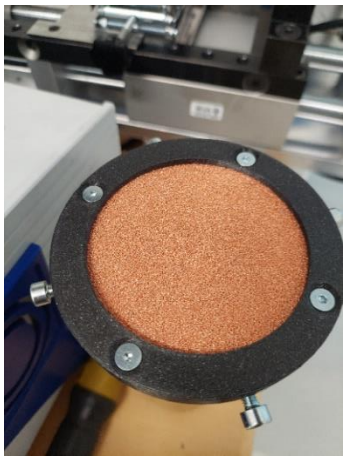
The outer size of the conductor is limited to 75mm.
The contact between the flat conductor end and the connector body is done through a dedicated conductive pad. Under the pressure applied though a screw, the disk (one shot use) deforms to contact the individual wires to the connector.

INSTALLATION PROCESS

A dedicated support to be installed on the ResTest 210 is used.
Clamps are placed around the conductor to maintain the wires in place. The conductor is then cut perpendicular to its longitudinal extension. The cut must be flat and clean.
The conductor is placed on the test bench and fixed in the connector support
A dedicated conductive disk (one shot use) is placed on the end face of the connector.
The connector is installed on the support and pressed firmly against the end of the clean cut conductor with the help of a dedicated screw to provide a contact to each individual wire.



75mm connection kit



disk positioned on the connector

This option is dedicated to AESA ResTest 210 for sample measurement.
The innovative measuring principle is patent filed by AESA.