

Introduction Discharges in Type “C” MV Terminations

Compiled by John Sherriff | January 2019 | Rev 1

The scope

On-Line condition assessment of the “C” Type terminations was conducted with the power circuits in operation. It is important to conduct these assessments when the plant is subject to the full combination of thermal, electrical and mechanical stresses that it is subject to while in service.

Diagnostic must be conducted by electrical insulation engineering specialists with the main focus on electrical discharges.

Electrical discharges in the “C” type terminations are undesirable, as it, not only compromises the integrity of the insulation but also impacts long term reliability and return on investment by accelerated ageing that will turn into a failure.

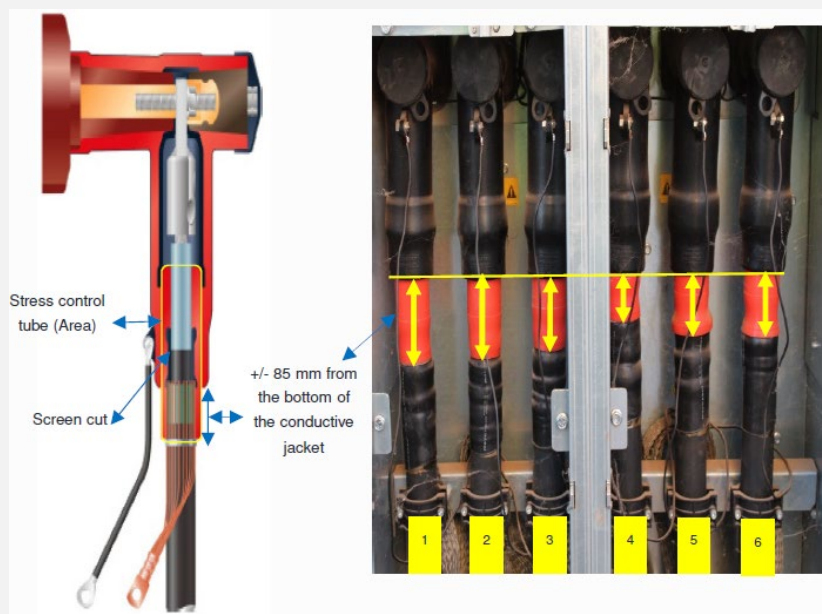
Key challenges

The below a photograph, showing the installation of six single core “C” type terminations in two cubicles next to each other.

Incorrect installation of the most important component in the termination is the stress control tubes, as indicated in the below photograph with the yellow arrows. The inner stress control area must cover the screen cut each way by 50%.

In this case, indicated by the yellow arrows, it can be seen that the stress control tubes are not the same length from the outer conductive jacket. Therefore the stress control area will not be in the correct position as indicated by the installation instructions.

Breakdown process caused by electrical discharges within MV terminations

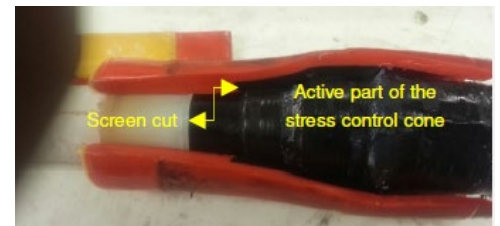


Defects leading to failure

The grey sealant tape was applied to the screen cut and this should not have being installed at this position.



The active part of the stress cone was not in the correct place and did not make contact with the screen cut.



Incorrect installation of the stress control will lead to tracking type discharges and premature failure.



Creepage distance is incorrect that create tracking inside the termination and lead to failure