

Results of Robustness test on Medium Voltage joints

Christophe **TOURCHER** (1), Christophe **MOREAU** (1), Roger **TAMBRUN** (2)

1 - EDF R&D, Moret sur Loing, France, christophe.tourcher@edf.fr, christophe.moreau@edf.fr

2 - ERDF, La Défense, France, roger.tambrun@erdfdistribution.fr

ERDF, the French Distribution System Operator (DSO), wants to improve the reliability of the electrical equipment installed on the power network in order to decrease the shortage duration of the energy supplied to customers.

The experience shows that the big quantity of MV joints which are installed on the French underground network play an important role both in terms of reliability and shortage duration.

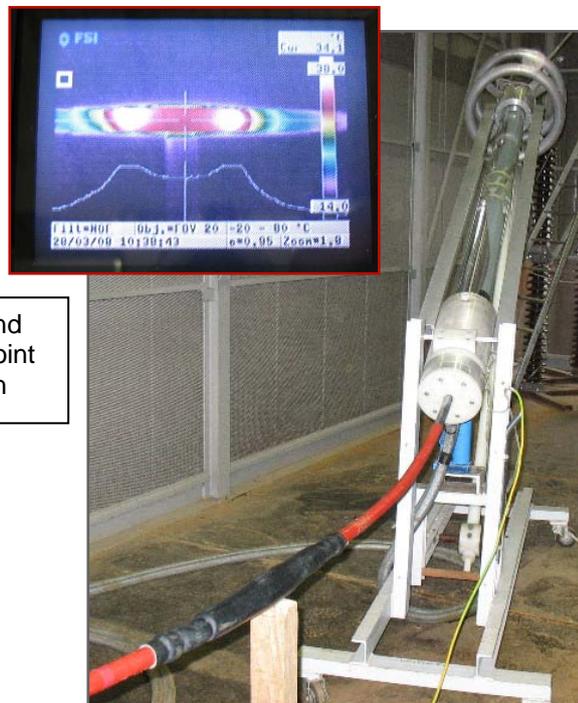
In the first part, the paper presents a new test designed to :

- evaluate the joint behaviour when exposed to water,
- enable performance comparison between different types of joints.

The joint behaviour is evaluated after an extended immersion period in water and when subjected to heating created by current cycles in the conductor in order to simulate the effects of the network load. This part of the test looks similar to the constraint given by HD 629. In addition, water is subjected to heat cycles in order to simulate the thermal variations of the environment.

Both internal and external heating constraints aim to highlight the possible weaknesses of materials and of sealing of joints.

At the end of the cycles, joints are subjected to a dielectric step test, up to breakdown. The comparison of breakdown voltage values give a technical rank between accessories.



Dielectric test set up and infrared photograph of joint just before breakdown

In the second part, the paper presents result of tests carried out on different designs and technologies of MV straight joints. It draws conclusions concerning the test procedure and the behaviour of joints.