

Connection to MV cable longitudinal aluminium screen

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Since polymeric cables are used in France, medium voltage cables have undergone evolutions, both in the design and in the cross-section conductor range. The last evolution leads to a new cable with reduced insulation thickness (4.5 mm) and with a polyethylene oversheath. Previously, French cables had a PVC oversheath.

Screen plates, which allow continuity of the screen of accessories and earth connection, have never been modified since the first edition of the French specification NF C 33-014.



Fig. 1: three models of screen plate

A Working Group Users/Customer has been created within the French Standardization National Committee (AFNOR/UTE TC20) in order to :

1. Withdraw the 10 Amps limitation and validate the maximum allowable current into screen plate in continuous operation,
2. Improve the installation of the screen plate on cables,
3. Make clear the technical definition of the screen plate,
4. Review the national specification NF C 33-014 to take into account new results and conclusions.

To study the effects of different parameters (sheath material, metal foil thickness, quality of plate and quality of installation), specific endurance tests were realized with two models of screen plate (for cables 240 mm² and 630 mm²).

The most important result is the better behavior of the screen plates tested with PE oversheath. But, examinations and conclusions show that the quality of the contact also depends on the installation methods which are used.

To improve the quality of contact with PE oversheath, different methods and devices have been studied by the working group. A short investigation test has been realized to select best installation methods.

Once selected, these methods are validated by a long duration test based on IEC 61238-1.

First results confirm our investigations for several configurations, only with PE oversheath, and a permanent current of 30-35 A could be possible.

However, it shall be necessary to improve tools to guaranty these results on the network.

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