

**A5.1****170 kV common termination system for cables with extruded insulation**

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Résumé

On utilise de plus en plus des câbles à isolation extrudée pour la transmission d'électricité. En ligne avec cette tendance, des accessoires ont été développés pour raccorder ces câbles à l'aide d'une technologie - exempte de fluide - compatible.

Pour la terminaison et la connexion de câbles à l'équipement - comme les GIS et les transformateurs - un système est proposé qui supprime les inconvénients des terminaisons remplies de fluide.

Abstract

Solid dielectric cables are used more and more for the transmission of electricity. In line with this trend, accessories have been developed to join these cables using a compatible fluid-free technology.

For the termination and connection of cables to equipment - like GIS and transformers - a system is proposed that does away with the drawbacks of the fluid-filled terminations.

1. Introduction

Conventional HV-cable terminals employing a fluid dielectric (gaseous or liquid) are used to connect cables to equipment or to other cables or overhead lines.

These fluids necessitate reliable seals, monitoring and maintenance.

Inherent to the construction of these terminals, the consequences of internal breakdown usually propagate to the connected equipment and the surrounding environment.

2. Conventional termination

The conventional HV-cable terminations were developed originally for cables with laminated dielectric.

This form of cable has relatively low longitudinal strength, and therefore necessitates rather long termination designs. As the cable dielectric is impregnated with a dielectric fluid, an insulating and sealing envelope is placed around the cable end, to stop leakage of the cable's impregnant.

It is logical to use the same fluid to fill this insulator after installing the cable inside.

An adequate seal between the insulator interior and the surrounding environment needs to be maintained to prevent loss of dielectric fluid.

The conventional techniques for conductor connection (crimping, welding, mechanical clamping, etc...) can be used.

This well-established conventional type of cable termination has a long record of performance, is well known and is documented in international specifications (e.g. IEC859-1) [1].

These conventional terminations were adapted to make them also usable for dry insulated cables (PE, XLPE, EPR, etc...).

By having the same termination concept for both laminated and extruded insulation cables, compatibility with existing plants is retained.