

عنوان مقاله:

Mechanical Aspects of Insulators for Overhead Line Compaction

محل انتشار:

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خلاصه مقاله:

Composite technology has been applied in competition with traditional glass and porcelain insulators in all of their various overhead line applications. Providing a viable alternative with handling and pollution performance advantages, composite insulators are becoming more and more widely accepted as a replacement for traditional insulators in their suspension and dead-end applications. However, the intrinsic properties of composite insulators: lightness, flexibility, and resistance to mechanical shock, means that their most striking superiority to traditional ceramic insulators can be seen in line post applications, where they are easier to manipulate and much more resistant to cascading than their porcelain counterparts. This paper discusses the advantages of composite insulators in the growing field of line compaction, using line post techniques to overcome the difficulties of increasing demand for electricity under intensifying pressure to cut costs and minimise environmental impact. It considers the mechanical phenomena affecting line post insulators in service: combined loading, mechanical 'shocks', and their long term and short term effects, explaining the failure mechanism of composite insulators under bending loads and the necessary design limits to consider when electing line posts for a given application. As well as its low cost and low visual impact, line compaction using composite line posts can provide a faster implementation for voltage upgrading projects, by allowing the use of existing structures and simplifying right-of-way difficulties, and so contribute to the overall efficiency of an upgrading programme.

کلمات کلیدی:

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