

Vibration of low-voltage busbar bridge



Overview

The resonance characteristics, short-circuit displacement, and stress concentration of four typical busbar system arrangements are numerically analysed in this study. First, modal analysis is used to calculate the vibration modes and natural frequencies of the busbar. This is the case of low voltage (LV) switchboards and of prefabricated transformer-switchboard connections. This quest for dependability requires studies in order to master, from the design stage, the behaviour of their components in the light of their environment and of possible operating. This paper concerns the effects of electrodynamic forces that act on current paths that are part of high-grade industrial distribution switchgear. This work is composed of experimental and simulation sections. In the experimental section, the short-circuit tests are presented and the occurrence of. Abstract: The short-circuit withstanding performance of busbar system is one of the most important safety indexes for low-voltage (LV) switchgear. Typically made from copper or aluminum, they vary in shape based on their function and current capacity.

Article Content

Vibration and acoustic radiation characteristics of a low voltage ...

A 3D FE structural model and a 3D BE acoustic model for it are developed. Its vibration response characteristics are calculated in terms of its natural frequencies and modal shapes by using ...

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The numerical simulations for predicting the operation noise of three-phase low voltage and heavy current busbar bridge under electromagnetic force ...

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Analysis of Vibration and Acoustic Radiation Characteristics of Busbar ...

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Low-Voltage Busbar Short-Circuit Lorentz Force Analysis

In this article, EMS will compute the Lorentz force of a low-voltage busbar system during a short-circuit scenario, comparing the results with analytical solutions.

Numerical analysis on the shortâ circuit withstanding performance ...

First, modal analysis is used to calculate the vibration modes and natural frequencies of the busbar systems. The influence of span length and phase-to-phase distance is discussed and thresholds for ...

Electrodynamic forces on busbars in LV systems

If the vibration frequency corresponds to a natural frequency for all conductors, resonance phenomena may occur. In this case the resulting stresses in the conductors may be far greater than those ...

Vibration Analysis and Experimental Study of GIS Busbar Enclosure ...

To explore the vibration response of the GIS busbar enclosure in a strong electric field, the electric force on the busbar enclosure was solved by the voltage in the circuit and the principle of virtual work. The ...

Electrodynamic Forces in Main Three-Phase Busbar System of Low ...

In the simulation section, the physical phenomenon of electrodynamic forces is being captured by employing a detailed real-scale model of switchgear and current paths.

Numerical analysis on the short-circuit withstanding ...

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