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Analysis of temperature distribution affected by oblique opening in high-pressure air circuit breaker SHINICHIRO KASHIWAGI, ZHENWEI REN, YUSUKE NEMOTO, YOSHIFUMI MAEDA, TORU IWAO, Tokyo City University — In recent years, deterioration of the global environment, especially global warming, has been highlighted as an urgent problem. For this reason, environmental measures to prevent global warming are being promoted in each industrial field. Efforts such as reduction of SF₆ gas emission are progressing, and environmentally friendly product development is required for each equipment. Focusing on the high-pressure air circuit breaker, it is important to understand the basic characteristics of the arc generated between the electrode contacts in order to achieve miniaturization and higher performance. However, the simulation analysis of oblique opening in the high-pressure air circuit breaker are very few reports. In this paper, we calculated the arc temperature distribution during oblique opening in the high-pressure air circuit breaker using the 3-D electromagnetic thermal fluid simulation. Specifically, we conducted an unsteady analysis in which the movable contact moved diagonally over time. As a result, the asymmetric temperature distribution was calculated by the diagonal opening.

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