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Prediction of SFL Interruption Performance from the Results of Arc Simulation during High-Current Phase JONG-CHUL LEE, WON-HO LEE, Gangneung-Wonju National University, WOUN-JEA KIM, Sungkyunkwan University — The design and development procedures of SF_6 gas circuit breakers are still largely based on trial and error through testing although the development costs go higher every year. The computation cannot cover the testing satisfactorily because all the real processes arc not taken into account. But the knowledge of the arc behavior and the prediction of the thermal-flow inside the interrupters by numerical simulations are more useful than those by experiments due to the difficulties to obtain physical quantities experimentally and the reduction of computational costs in recent years. In this paper, in order to get further information into the interruption process of a SF_6 self-blast interrupter, which is based on a combination of thermal expansion and the arc rotation principle, gas flow simulations with a CFD-arc modeling are performed during the whole switching process such as high-current period, pre-current zero period, and current-zero period. Through the complete work, the pressure-rise and the ramp of the pressure inside the chamber before current zero as well as the post-arc current after current zero should be a good criterion to predict the short-line fault interruption performance of interrupters.

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