INFLUENCE OF MOVING AND FIXED CATHODES ON THE VACUUM ARC

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ABSTRACT

In Vacuum Interrupters (VIs) there are typically a moving and a fixed contact which are separated during the switching process. While switching AC-currents the polarity of the contacts can be different from one to the other operation. Although the VIs are successfully operating in both polarities, recently there have been some differences noted in the behaviour of the vacuum arc depending on whether the cathode was the moving or the fixed contact. In this publication we try to get some insight on the underlying processes which lead to this polarity dependant behaviour. For this we observed the behaviour of the vacuum arc in a vacuum chamber by a high-speed camera. Additionally, the burn-off rate of the electrodes in different setups have been measured. The results give some insight into the effect of the polarity during the switching operation in a vacuum interrupter.