Artur Rojek: Study of the Impact of the Contact Arc Time on the Breaking Time of High-Speed Circuit Breakers

High-speed circuit-breakers (HSCB) are subjected to various research and laboratory tests. Standardization documents specify, among others, such HSCB parameters as opening time and arcing time, the sum of which constitutes the breaking time. The opening time largely depends on the HSCB construction – of the way it is triggered and the mechanism which opens the contacts. The arcing time is also dependent on the HSCB construction. The contacts structure, arc chute parameters and the method of the arc extinguishing as well as the method of magnetic blowout.
The time when a low value arc appears is defined as contact arcing time. Standards according to which high-speed circuit breakers' tests are carried out do not characterize and do not include this parameter in their scope, although it is an important factor affecting the speed of breaking the current and the extent of its limitation.

Keywords: high-speed circuit-breaker, break time, arcing time, contact arcing time