



Vacuum Interrupter Fast Drive

Thomson Drive

CONTEXT

In the near future, several applications like Direct Current Circuit Breakers, ultra-fast breakers for AC applications and, potentially, superconducting fault current limiter assisted switches will need a very fast acting switch.

In contrast to an AC circuit breaker that interrupts a current at its natural current zero, fast breaking devices require to reach open position in very short durations, typically less than 10 ms.

Mechanical drives are not suitable for such applications. Today Thomson drives and other magnetic induction drives allow to reach such reaction times.

TECHNOLOGY DESCRIPTION

The proposed results include the design of a highly reactive Thomson drive to operate Vacuum Interrupters.

Existing design proved to fully open in less than 5 ms while remaining very repetitive over 500 operations.



Furthermore the prototype successfully maintained the vacuum interrupter closed during a short-time current withstand test at 63kAp/32kArms

APPLICATION DOMAIN

- MVDC network protection : distribution, industrial, railway
- HVDC network protection : transmission
- Very special AC applications

ADVANTAGES

- Compact Design
- Tested reactive Drive
- Compatible with MV Vacuum Bottles

TRL SCALE



Mechanical Tests performed
500 Operation endurance test performed
Short-circuit withstand test at 32 kA.

DELIVERABLES

PATENT Application : NA
Design, Consultancy and prototyping

