



Double Vacuum Interrupter Thomson Drive

Low Vibration Double Break Ultra Fast 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.

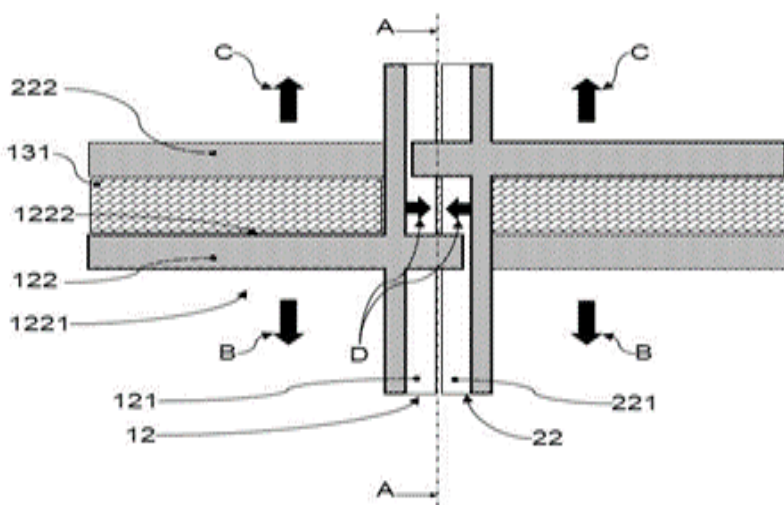
Mechanical drives are not suitable for such applications. Today Thomson drives and other magnetic induction drives allow to reach such reaction times. Most of the time, series association of such drives are necessary to comply with high voltage specification. This arrangement creates high intensity vibrations due to high accelerations and deceleration forces which requires that the structures supporting the equipment be sized accordingly.

TECHNOLOGY DESCRIPTION

The proposed technology allows to operate two devices with only one central mechanism while reducing the moving parts and masses.

The design allows to reduce the vibrations on the structure since the momentum of the moving masses cancel each other.

Moreover, any desynchronization that is due to an electrical cause is avoided for the opening operation since both interrupter are operated by the same current flowing in the Thomson coil.



APPLICATION DOMAIN

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

ADVANTAGES

- Compact Design
- Reactive
- Double Vacuum Interrupter switch
- Low vibration design

TRL SCALE



Simulations performed
On-going mechanical parts design.

DELIVERABLES

PATENT Application : WO2021239739
Design consultancy and prototyping