



# Direct Current enhanced Disconnector

## CONTEXT

Due to the development of High Voltage Direct Current (HVDC) technology which is particularly suitable for the transmission of large amount of energy over long distances and for off-shore energy integration, new technology for HVDC Switchgears must be developed. In a meshed network, using a breaker to reconfigure the network can be expensive. To save capex and space, disconnectors can be used to this propose, therefore they need to be able to switch loads within loops.

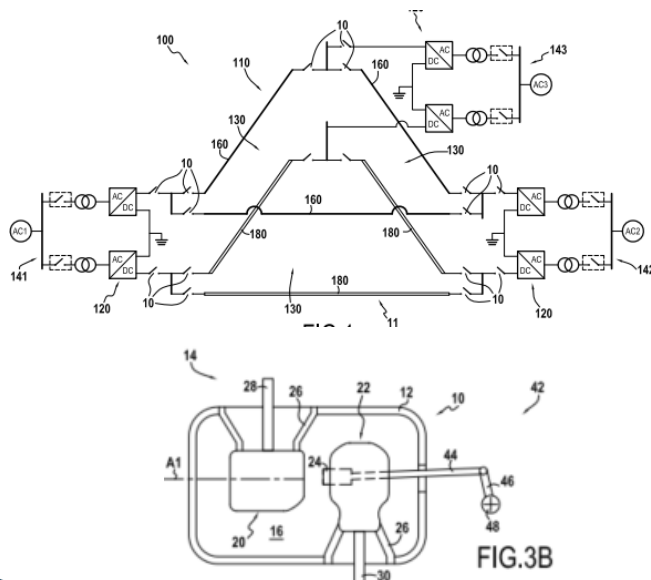
In contrast to an AC circuit switches that interrupts a current at its natural current zero, in DC an artificial current zero must be created with the assistance of an auxiliary circuit.

In AC Ultra high voltage networks, nominal currents and loop voltages are increasing and reaching the limits of conventional disconnector contact systems.

## TECHNOLOGY DESCRIPTION

The proposed technology allows to create a current zero within a secondary arcing branch of the disconnector contact system.

In this branch, one or several triggered power electronic components (Transistor, Thyristor...) interrupt the current. A surge arrester absorbs the magnetic energy finalizing the interruption.



## APPLICATION DOMAIN

- MVDC and HVDC network
- Ultra HVAC (high busbar transfer requirements)

## ADVANTAGES

- Low conduction losses in main branch
- Allows to create redundancy in HVDC substations (Double busbars scheme)
- Low cost (compared to DCCB)

## TRL SCALE



Patent

## DELIVERABLES

PATENT APPLICATION WO2019077269

