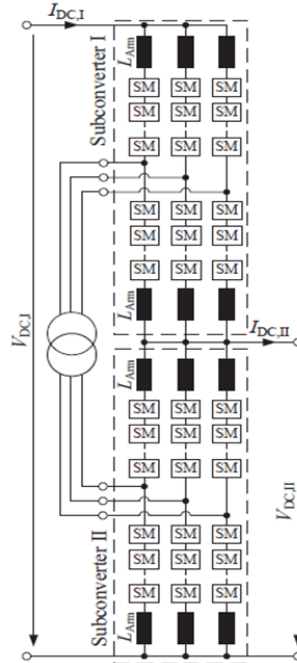




# Modular DC-Autotransformer

## CONTEXT

While HVDC transmission is well established for point-to-point applications, it is expected that dc systems will become more complex with for example the need of interconnection of dc systems at different rated voltages. Among the proposed solutions, the dc-auto-transformer (anterior art, figure opposite) allows to connect in series VSCs in order to share the high voltage and, contrary to front-to-front converters, to convert only a fraction of the transmitted power from dc to ac and then from ac to dc. This solution is only well suited for voltage ratios (lower voltage / higher voltage) close to 0.5.



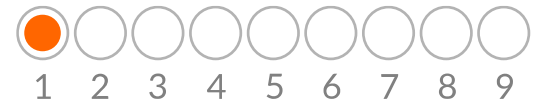
## APPLICATION DOMAIN

- Interconnection of DC systems
- HVDC
- MVDC

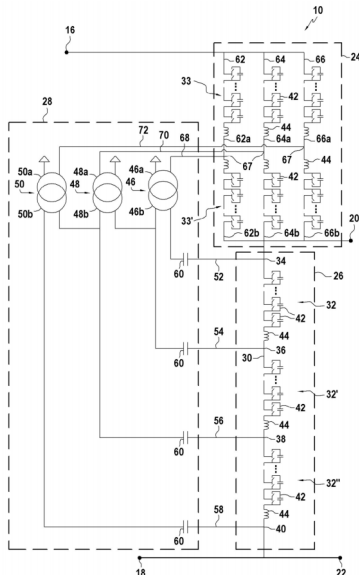
## ADVANTAGES

- Increased modularity
- Adapted to a wide range of voltage ratios

## TRL SCALE



## TECHNOLOGY DESCRIPTION



The proposed solution is to install a different number of legs in series and in parallel for the upper and lower converters. Thanks to this approach, the submodule ratings are in the same range. There are more legs in parallel in the VSC which has the higher current constraint and more legs in series in the VSC with the higher voltage constraint.

## DELIVERABLES

PATENT APPLICATION WO 2021/259624

## SCIENTIFIC REFERENCE

None