

## EUR24\_01 - Impact of transformer-limited fault on TRV of MV circuit breakers

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Abstract:

In medium voltage distribution of industrial plants there is sometimes the need to limit the short circuit fault currents, due the increasing power of distribution transformers for applications at 4.16 kV to 10 kV, or in the scenario of using a meshed grid by making two transformers to work in parallel at these voltage levels.

The practice of increasing the short circuit impedance of transformers can be an affordable solution to limit the fault current below the withstand capability of medium voltage switchgear equipment, avoiding for example the use of additionally air-core reactors to be installed in series to the distribution transformer incomer feeders.

However, the stray capacitances of the transformer windings and bushings causes a very high steepness in the rate of rise of TRV (Transient Recovery Voltage) just few moments after fault current interruption, and circuit breaker failure can result.

Electromagnetic transient studies are performed in order to specify the most suitable TRV test duty in accordance to the applicable IEC standards for circuit breakers.