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Dry Type Transformer Protection against Switching Surges

More and more Dry Type Transformers (DTT) are being installed in buildings and industry because of their low fire risk, space and weight considerations.

We have further witnessed the wholesale replacement of Oil filled breakers by Vacuum and SF6 breakers. These latter breakers are appealing for their low fire risk, maintenance and easy replacement considerations.

The problem with the above breakers is that they inherently have an affinity to produce switching spikes during their life span. These spikes have a rise time of 0.1 to 2 micro seconds. The spikes can have amplitudes of up to 6 per unit.

Each opening or closing operation of the breaker can generate of up to 30 spikes.

These spikes travel along the cable to the DTT terminals. They penetrate up to 4 windings deep and create pinholes in the insulation of the DTT.

After a time, the insulation crumbles and degrades severely. This can cause insulation failure resulting in the breakdown of the DTT. When this happens we see a very expensive string of costs emerging:

- Taking the DTT out of the system
- Transport costs to the re winder company
- The rewinding costs
- The transport costs back to the original site
- Reinstallation and re commissioning of the DTT
- The down time of the system energized by the DTT

The latter cost is usually the most critical. Strike Technologies (Pty) Ltd has a unique solution for this problem in the form of the ZORC.

The ZORC is a unique High Voltage, High Frequency filter that will divert the above spikes to the DTT earth.

When correctly installed, ZORC will protect the DTT for up to 20 years with virtually no maintenance.

The ZORC can easily be incorporated in the system either in the switch panel at the breaker or at the DTT. The latter arrangement is preferred.

Strike Technologies (Pty) Ltd has ZORC ranging from 400 Volt to 40000 Volt line to line 50 and 60 Hertz, in single or three phase constructions depending on the line to line voltage. ZORC can be Exn certified for various hazardous applications.

It is recommended to install ZORC on the HV and the LV side of the transformer to provide optimal protection under all circumstances.

The ZORC is easy to install in new or existing installations and has an extremely high performance to cost ratio.

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