Transformer Insulation Drying Using Low-Frequency Heating/ Vacuum

KINECTRICS

The Criticality of Moisture Management:

- Periodic moisture removal in power transformers is a fundamental maintenance activity, keeping equipment in peak operating condition while maximizing the life of the asset and mitigating the risk of dielectric breakdown and catastrophic failure.
- LHF dry-out is a fast, effective, and efficient moisture removal technology for mission-critical power transformer assets that reduces down-time and expedites return-to-service.
- A recent survey found 9.7% of 85,210 in-service transformers tested had unacceptable moisture levels (> 18% relative saturation).

Moisture is a byproduct of the **aging of cellulose insulation** and naturally accumulates over time

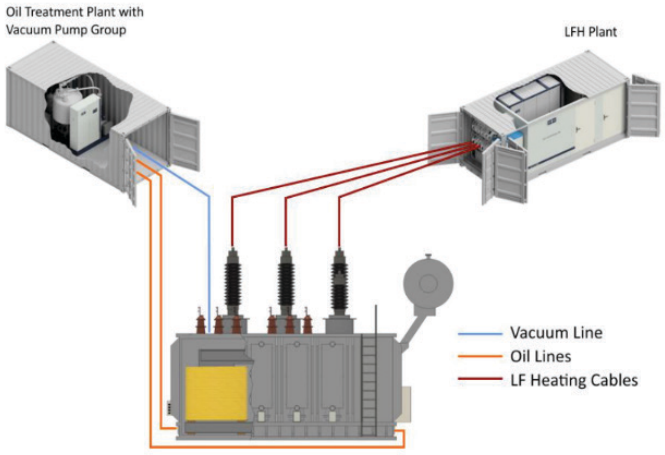
If not removed periodically, moisture can lead to **partial discharge**, **catastrophic dielectric breakdown**, **accelerated aging**, **bubble formation** during overload situations, & **anomalous gas** generation.

Experience shows that processing of the insulating oil on its own produces **poor long-term results** due to the long diffusion time-constant of moisture migration through the insulating paper to the oil.

Contact us for a quote today!

Kinectrics' **LFH/Vacuum Insulation Dry-Out System** is the most powerful mobile system in North America. We offer excellent results in days - not weeks or months!

Process Overview:



General connection sketch, (oil tanks for oil drain purpose are not indicated)

- LFH, coupled with coordinated application of deep vacuum, is the most effective and fastest insulation dry-out technique available for field use.
- Our equipment can dry quickly and efficiently transformers up to 1200 MVA, three-phase, 765 kV class.
- Kinectrics can validate moisture removal from the insulation using dielectric spectroscopy, dewpoint measurement, and/or rate of moisture extraction.
- LFH is an effective dry-out technique for large, varnish-dipped, dry-type transformers and should be performed as part of the commissioning process ("bake-out") or if the unit has been stored for a significant amount of time.