

Unique thermal management in out door type dry transformers

This is an unconventional technology of thermal management in dry outdoor type distribution transformers. It consists of application of mechanical heat exchangers such as heat pipes & heat sinks in dry distribution transformers. In dry type transformers, the major constraint is removal of heat produced by the electrical power loss in windings and core. Conventionally, to manage this heat the transformers are made bigger by putting more active material like copper and iron core and costly electrical insulation. This efficient thermal management technology reduces operating temperatures of dry transformers to thermal class B (130°C) or lower that helps in reduction in the material cost by about 40% or higher. Further as the transformers operate at lower temperatures there is a reduction in the power consumed by the transformers by about 20%.

Salient Features

The technology is designed to be used in manufacturing of dry type distribution transformers for distribution of electric power. Pole mount distribution transformers, Resin cast indoor type power transformers. It is designed to be used in transformer industry.

To meet the requirements listed in item 4 above the obvious selection was to go for dry type transformer. Over the conventional transformers the benefits of the innovation are- 1) Lower material cost, 2) Higher life as aging of insulation is very slow, 3) operating at lower temperatures (130°C or below) than that of conventional dry transformers (150°C and above), 4) compact, 5) cost effective (less material), 6) can be used for outdoor or indoor application. 7) Low power consumption (about 20% less than conventional)

Major Application / End Users

Electric power distribution companies / Utilities in India and abroad, private industries, Residential complex or apartments.