

Weight Comparison of Oil and Dry Type Distribution Transformers

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Abstract : Reducing the weight of transformers while providing good performance, cost reduction and increased efficiency is important. Weight is one of the most significant factors in all electrical machines, and as such, many transformer design parameters are related to weight calculations. This study presents a comparison of the weight of oil type transformers and dry type transformer weight. Oil type transformers are mainly used in industry; however, dry type transformers are becoming more widespread in recent years. MATLAB is typically used for designing transformers and design parameters (rated voltages, core loss, etc.) along with design in ANSYS Maxwell. Similar to other studies, this study presented that the dry type transformer option is limited. Moreover, the commonly-used 50 kVA distribution transformers in the industry are oil type and dry type transformers are designed and considered in terms of weight. Currently, the preference for low-cost oil-type transformers would change if costs for dry-type transformer were more competitive. The aim of this study was to compare the weight of transformers, which is a substantial cost factor, and to provide an evaluation about increasing the use of dry type transformers.

Keywords : weight, optimization, oil-type transformers, dry-type transformers

Conference Title : ICEME 2016 : International Conference on Electrical and Mechanical Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : July 21-22, 2016