

Design construction and programming of Single phase step down transformer



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Declaration

I declare that the work contained in this thesis is my own, except where explicitly stated.

Otherwise, In addition this work has not been submitted to obtain another degree or Professional qualification

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Acknowledgment

Thanks Allah for giving us the courage. Special thanks to our Advisor for polite behavior and help us whenever help was needed.

**Dedicated to the teacher of the universe Prophet Muhammad Peace
And Blessings Be Upon Him.**

Our Parents

And

Our Teachers

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ABSTRACT

A power transformer is a static device that by electromagnetic induction transmits power from one alternating voltage to other without changing frequency. In this report we present a design of single phase shell type step down transformer. We want to design this transformer in a very simple and efficient manner. Our main purpose is to design a transformer which has more efficiency and limited losses like low excitation current, no load losses and total losses. We also design a software program to show all the electrical parameters necessary for the design of transformer. We designed the program in such a way that the user will give only the input parameters like transformer ratings, primary voltage, secondary voltage and frequency and in result of this the program will automatically calculate all the parameters which we needed to design a transformer. From this the designer can easily predict the output of transformer by just giving input parameters and easily knows that how efficient is our transformer.

Chapter 1

INTRODUCTION

Transformer is a device which transfers electrical power from one electrical circuit to another circuit without changing its frequency. To compete successfully in global economy we need to design such transformers which have high accuracy and efficiency. It is not possible that without transformers the electrical energy which is generated at the power stations sufficiently provided to an area or any city. For this purpose we need to design more efficient and accurate transformers which provide sufficient amount of energy to power up a city. By using different type of software and programs we can do this in a very short time and can make a transformer with high efficiency and from this we can also save our time. In this report we explain the design of 25kva step down transformer and we also calculate all the parameters of transformer using a program. In this we design the single phase transformer it means we have to design the core of transformer and its windings. When we design the core of transformer we have notice some losses like excitation losses, eddy current losses, no load losses, total losses, iron losses and cooper losses. All these losses reduce the reliability and efficiency of transformer and in this project our main purpose is to reduce all the losses. To obtain better result we use a program because that gives us all necessary parameters and tell about all the losses so that we can be able to construct a transformer with high efficiency. Basically behind this there is a program included all the relative formulas of transformer which calculate all the parameters of transformer and hence the designer predict easily about the losses and all the features of transformer. Using this program the design and construction of transformer can be easy and we get more efficient and accurate product and also make our project more interesting. In this project we want to make a 25kva step down transformer, its core construction, its windings construction related to step down transformer and its losses reduction. We also try to reduce our total owing cost of transformer. According to above analysis we determine that we have to design a single phase step down transformer with high efficiency and fewer losses with less total owing cost. To play such a role we also needed help from a program based on the formulas related to transformer and thus we can easily achieve our goal of construction of shell type transformer.