CYCLE INITIAL EN TECHNOLOGIES DE L'INFORMATION DE SAINT-ÉTIENNE

TRASNFORMERS

REPORT TP ENER2
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Abstract

We'll be studying DC Motors both in a configuration with and without a load in an attempt to better understand the principles that tie the theory translated by formulas to their direct implication in a laboratory setting.

No-Load experiment
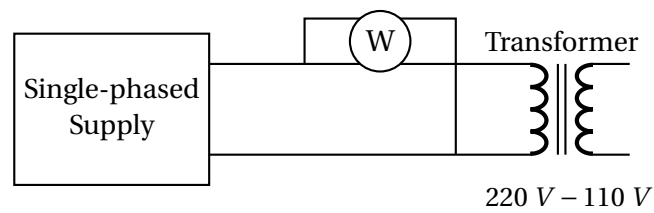
No-Load Transformer Circuit

Data	Value
Primary voltage	238 V
Secondary voltage	123 V
Primary current	0.519 A
Active power	45.6 W
Reactive power	115 VAR

Measured properties

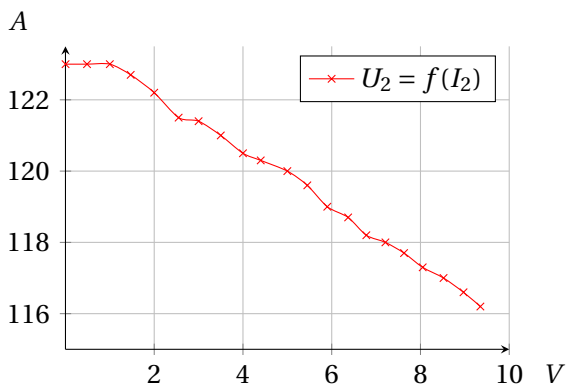| Data	Value
Transformation ratio	0.517
Ferromagnetic losses (R_f)	1242
Inductive component(X_m)	492
Power factor	0.099

Determined properties

Using the measured values we can then quickly determine other properties of our transformer as seen above.
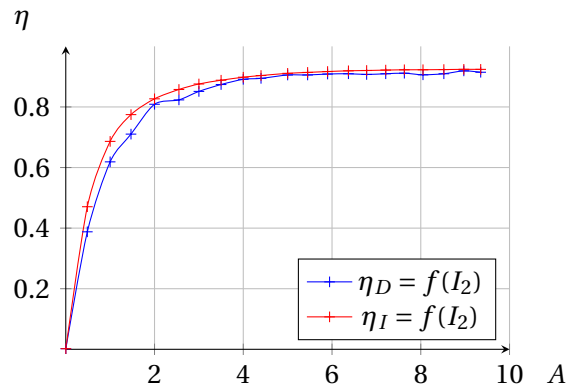
Loaded experiment
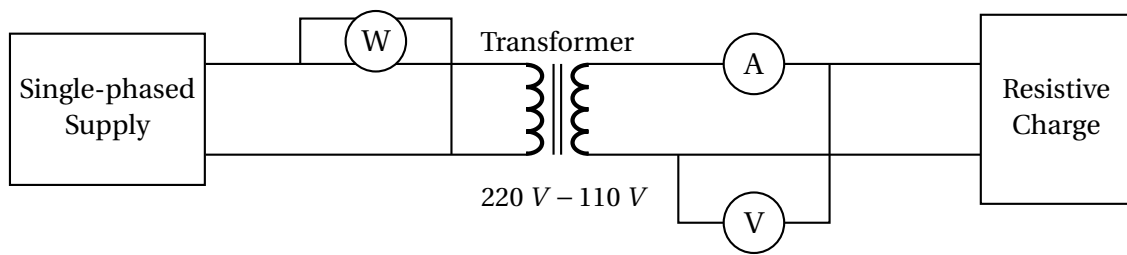


Loaded Transformer Circuit

$\cos(\varphi) = 1$ $\eta_D = 0.924$ $\eta_I = 0.92$

Between both curves we can notice than one of them seems more precise than the other, this is to be expected since after all this corresponds to a theoretical estimation since in reality the efficiency can differ from expectations. This is mainly used with big transformers since we can't play with dangerously high voltages on the secondary coil as this would require massively high resistances.
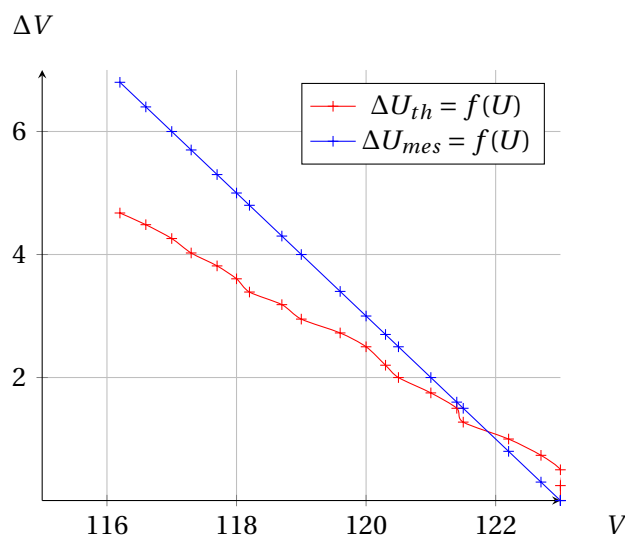
The estimation isn't completely lining up with the experimental values since with small transformers we have an inductive component which can't simply be neglected.