

ABSTRAK
ANALISIS PERHITUNGAN RUGI-RUGI TRANSFORMATOR
DISTRIBUSI TR-30 2500 KVA/2.3 KV/480 V DI P-III
PT. PUPUK SRIWIDJAJA PALEMBANG

(2025: XV + 55 Halaman + 20 Daftar Gambar + 5 Daftar Tabel + 11 Lampiran)

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JURUSAN TEKNIK ELEKTRO

PROGRAM STUDI TEKNIK LISTRIK

POLITEKNIK NEGERI SRIWIJAYA

Penelitian ini bertujuan untuk mengetahui besarnya rugi-rugi daya, yang terdiri dari rugi inti dan rugi tembaga, serta nilai efisiensi transformator distribusi TR-30 berkapasitas 2500 kVA berdasarkan data operasional di PT. Pupuk Sriwidjaja Palembang. Metode penelitian yang digunakan meliputi studi literatur, observasi lapangan dan wawancara. Hasil analisis menunjukkan bahwa rugi inti yang diperoleh bersifat tetap sebesar 2.312,8 W, sedangkan rugi tembaga bervariasi tergantung pada kondisi pembebanan. Rugi-rugi total terkecil terjadi pada saat beban terendah sebesar 2.750,63 W dan rugi-rugi total terbesar pada saat beban tertinggi sebesar 6.237,63 W. Efisiensi transformator berkisar antara 97,14% hingga 97,67%. Nilai efisiensi dipengaruhi oleh besarnya beban dan rugi total pada transformator. Semakin besar rugi-rugi yang dihasilkan, maka semakin besar daya yang hilang pada transformator. Penelitian ini menunjukkan bahwa kondisi pembebanan berpengaruh langsung terhadap rugi daya dan efisiensi transformator distribusi.

Kata Kunci : Transformator, Rugi-Rugi, Efisiensi, Beban

ABSTRACT
ANALYSIS OF LOSS CALCULATIONS ON THE TR-30 2500 KVA/2.3
KV/480 V DISTRIBUTION TRANSFORMER IN THE P-III
OF PT. PUPUK SRIWIDJAJA PALEMBANG

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ELECTRICAL ENGINEERING DEPARTEMENT

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SRIWIJAYA STATE POLYTECHNIC

This study aims to determine the magnitude of power losses, consisting of core losses and copper losses, as well as the efficiency value of the TR-30 distribution transformer with a capacity of 2500 kVA based on operational data at PT. Pupuk Sriwidjaja Palembang. The research methods used include literature studies, field observations and interviews. The results of the analysis show that the core loss obtained is constant at 2,312.8 W, while the copper loss varies depending on the loading conditions. The smallest total losses occur at the lowest load of 2,750.63 W and the largest total losses at the highest load of 6,237.63 W. Transformer efficiency ranges from 97.14% to 97.67%. The efficiency value is influenced by the magnitude of the load and total losses in the transformer. The greater the losses produced, the greater the power lost in the transformer. This study shows that loading conditions directly affect the power losses and efficiency of distribution transformers.

Keywords : Transformer, Losses, Efficiency, Load