ABSTRAK

EFISIENSI MOTOR INDUKSI 3 FASA GB801M SEBAGAI PENGHISAP DEBU DI PT. PUSRI

(2025: xiv + 50 Halaman + Gambar + Tabel + Lampiran)

Dimas Arya Aditya

062230310528

Jurusan Teknik Elektro Program Studi Teknik Listrik

Politeknik Negeri Sriwijaya

Penelitian ini bertujuan untuk menganalisis efisiensi motor induksi tiga fasa tipe GB801M yang digunakan sebagai penggerak blower penyerap debu di PT Pusri. Pengujian dilakukan secara langsung dengan mengukur daya masukan, rugi-rugi daya stator, rotor, inti, dan mekanik menggunakan Clamp Meter serta Multimeter. Hasil pengukuran menunjukkan bahwa daya masukan motor berkisar antara 2.819 W hingga 4.115 W, dengan rugi total harian rata-rata sebesar 555,7 W. Efisiensi motor tertinggi mencapai 86,4% dan terendah 81,9%, tergantung pada variasi beban harian yang terjadi selama pengujian. Analisis menunjukkan bahwa sebagian besar rugi daya berasal dari rugi tembaga stator dan rotor, sementara rugi inti dan mekanik tetap stabil pada pengujian tanpa beban. Hasil penelitian ini diharapkan dapat menjadi acuan dalam optimalisasi performa motor dan penghematan energi listrik di lingkungan industri.

Kata kunci: Motor Induksi Tiga Fasa

ABSTRACT

EFFICIENCY OF 3-PHASE INDUCTION MOTOR GB801M AS A DUST EXHAUST AT PT. PUSRI

(2025: xiv + 50 Pages + Picture + Table + Attachment)

Dimas Arya Aditya

062230310528

Electrical Engineering Department Electrical Engineering Study Program

Sriwijaya State Polytechnic

This research aims to analyze the efficiency of a three-phase induction motor type GB801M used to drive a dust suction blower at PT Pusri. The testing was conducted directly by measuring input power, stator losses, rotor losses, core losses, and mechanical losses using a Clamp Meter and Multimeter. The results showed that the motor's input power ranged from 2,819 W to 4,115 W, with an average daily total loss of approximately 555.7 W. The highest motor efficiency achieved was 86.4%, while the lowest was 81.9%, depending on the daily load variation during the measurement period. The analysis indicated that the largest power losses originated from stator and rotor copper losses, while core and mechanical losses remained relatively constant under no-load conditions. This research is expected to serve as a reference for optimizing motor performance and improving energy efficiency in industrial operations.

Keywords: Three-Phase Induction Motor