ABSTRAK

ANALISIS KELAYAKAN MOTOR INDUKSI 3 FASA BERDASARKAN TAHANAN ISOLASI DAN INDEKS POLARISASI DI PT.PN VII BETUNG

(2025 : xiii + 57 Halaman + Daftar Pustaka + Lampiran)

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Motor induksi tiga fasa merupakan komponen vital dalam sistem kelistrikan industri. Penelitian ini bertujuan menganalisis kelayakan operasional motor blower induksi tiga fasa di PT.PN VII Betung melalui pengujian tahanan isolasi dan indeks polarisasi (PI) sesuai standar IEEE 43-2000. Pengukuran dilakukan selama 10 menit untuk setiap belitan terhadap ground. Hasil menunjukkan nilai rata-rata tahanan isolasi: 523 MΩ (U), 489,6 MΩ (V), dan 453,9 MΩ (W). Indeks polarisasi juga dalam batas optimal: 2,84 (U), 2,42 (V), dan 2,57 (W), dengan arus bocor yang sangat rendah. Hal ini menandakan motor dalam kondisi baik dan layak operasi. Penelitian ini menekankan pentingnya pemeliharaan preventif berbasis data untuk mendukung keandalan dan keselamatan sistem.

Kata Kunci: motor induksi, kelayakan, isolasi, polarisasi, pengujian

ABSTRACT

FEASIBILITY ANALYSIS OF 3 PHASE INDUCTION MOTOR BASED ON INSULATION RESISTANCE AND POLARIZATION INDEX IN PT.PN VII BETUNG

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Three-phase induction motors are vital components in industrial electrical systems. This study aims to analyze the operational feasibility of three-phase induction blower motors at PT PN VII Betung through testing insulation resistance and polarization index (PI) according to IEEE 43-2000 standards. Measurements were taken for 10 minutes for each winding against ground. The results show the average value of insulation resistance: 523 MΩ (U), 489.6 MΩ (V), and 453.9 MΩ (W). The polarization indices are also within optimal limits: 2.84 (U), 2.42 (V), and 2.57 (W), with very low leakage currents. This indicates the motor is in good condition and fit for operation. This research emphasizes the importance of data-driven preventive maintenance to support system reliability and safety.

Keywords*: induction motor, eligibility, insulation, polarization, testing*