

ABSTRAK

PROTEKSI PADA MOTOR INDUKSI 3 FASA 300 HP 2,3 kV MENGGUNAKAN RELAI ARUS LEBIH DI PT PUPUK SRIWIDJAJA PALEMBANG 2026

(2026 : 66 Halaman + 28 Daftar Pustaka + 30 Daftar Isi + 11 Daftar Gambar + 6 Daftar Tabel + 11 Lampiran)

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Motor induksi tiga fasa merupakan peralatan penting dalam sistem industri karena digunakan sebagai penggerak berbagai peralatan produksi yang memerlukan keandalan operasi tinggi. Gangguan arus lebih dapat menyebabkan pemanasan berlebih pada belitan motor sehingga berpotensi menimbulkan kerusakan dan gangguan proses produksi. Penelitian ini bertujuan untuk menganalisis penyetelan relai arus lebih (*Over Current Relay*) pada motor induksi tiga fasa berkapasitas 300 HP dan tegangan 2,3 kV menggunakan relai GE Multilin 369 Motor Management Relay. Metode yang digunakan meliputi perhitungan arus nominal motor, arus *pickup* relai, arus *starting*, *setting short circuit trip*, serta waktu operasi relai menggunakan metode *Thermal Damage Limit* (TDL). Hasil penelitian menunjukkan bahwa arus nominal motor sebesar 67,69 A, arus *pickup* relai sebesar 71,074 A, dan *setting short circuit trip* sebesar 550 A. Perhitungan waktu operasi relai pada arus gangguan 550 A menghasilkan waktu operasi sebesar 45,44 detik. Hasil analisis menunjukkan bahwa setting OCR yang digunakan telah sesuai dengan karakteristik operasi motor karena mampu membedakan kondisi normal, *starting*, dan gangguan arus lebih.

Kata Kunci : Motor Induksi, OCR, CT, Arus *Pickup*, TDL.

ABSTRACT

PROTECTION OF A 300 HP, 2.3 kV THREE-PHASE INDUCTION MOTOR USING AN OVERCURRENT RELAY AT PT PUPUK SRIWIDJAJA PALEMBANG 2026

(2026 : 66 Page + 28 Reference + 30 List of Content + 11 List of Pictures + 6 List of Table + 11 Enclosure)

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Three-phase induction motors are important equipment in industrial systems because they are widely used to drive production machinery requiring high operational reliability. Overcurrent disturbances can cause excessive heating in motor windings, potentially leading to equipment damage and production interruptions. This study aims to analyze the setting of an Over Current Relay (OCR) applied to a 300 HP, 2.3 kV three-phase induction motor protected by a GE Multilin 369 Motor Management Relay. The research method includes calculating the motor rated current, relay pickup current, starting current, short-circuit trip setting, and relay operating time using the Thermal Damage Limit (TDL) method. The results show that the motor rated current is 67.69 A, the relay pickup current is 71.074 A, and the short-circuit trip setting is 550 A. The relay operating time at a fault current of 550 A is 45.44 seconds. The analysis indicates that the applied OCR settings are suitable for the motor operating characteristics because they can distinguish normal operating conditions, motor starting conditions, and overcurrent fault conditions.

Keywords : *Induction Motor, OCR, CT, Pickup Current, TDL.*