

ABSTRAK

ADITYA ADI PIYANTO. Optimasi Proses Alignment pada Coupling Boiler Fan PLTU Banten 1 Suralaya Menggunakan Pendekatan Double Face Dial. Dibimbing oleh Dr.Drs. PRAYUDI, MM, MT.

Alignment coupling boiler fan merupakan pekerjaan pemeliharaan penting untuk menjaga keandalan dan efisiensi operasi PLTU Banten 1 Suralaya. Konfigurasi boiler fan dengan intermediate long shaft menyebabkan sistem menjadi sensitif terhadap kesalahan kecil pada posisi motor, sehingga diperlukan metode alignment yang tepat dan terkontrol. Penelitian ini bertujuan untuk mengoptimalkan proses alignment coupling boiler fan menggunakan metode Double Face Dial Indicator melalui pengembangan aplikasi perhitungan alignment berbasis Visual Basic. Nilai koreksi vertikal dan horizontal yang dihasilkan oleh aplikasi kemudian diverifikasi secara fungsional menggunakan simulasi 3D CAD dengan dimensi aktual fan dan motor. Simulasi dilakukan pada berbagai variasi kondisi alignment untuk merepresentasikan kemungkinan ketidaksejajaran yang terjadi di lapangan. Evaluasi kesesuaian hasil koreksi alignment dilakukan dengan membandingkan nilai offset kopling hasil simulasi terhadap range standar alignment yang diizinkan. Hasil penelitian menunjukkan bahwa nilai koreksi alignment yang dihasilkan oleh aplikasi berada dalam batas toleransi alignment yang ditetapkan, sehingga aplikasi mampu memberikan hasil koreksi yang konsisten dan sesuai secara teknis. Dengan demikian, aplikasi perhitungan alignment yang dikembangkan layak digunakan sebagai alat bantu dalam proses alignment coupling boiler fan di PLTU Banten 1 Suralaya.

Kata kunci: Alignment, Boiler Fan, Double Face Dial, 3D CAD

ABSTRACT

ADITYA ADI PIYANTO. Optimization Of Alignment Process On Boiler Fan Coupling At Pltu Banten 1 Suralaya Using The Double Face Dial Method. Supervised by Dr. Drs. PRAYUDI, MM, MT..

Coupling alignment of boiler fans is a critical maintenance activity to ensure the reliability and operational efficiency of PLTU Banten 1 Suralaya. The boiler fan configuration with an intermediate long shaft makes the system highly sensitive to small errors in motor positioning, thereby requiring a controlled and accurate alignment method. This study aims to optimize the boiler fan coupling alignment process using the Double Face Dial Indicator method through the development of an alignment calculation application based on Visual Basic. The vertical and horizontal correction values generated by the application were subsequently functionally verified using 3D CAD simulations with actual fan and motor dimensions. The simulations were conducted under various alignment condition scenarios to represent potential misalignment conditions encountered in the field. The suitability of the alignment correction results was evaluated by comparing the simulated coupling offset values against the allowable standard alignment ranges. The results indicate that the alignment correction values produced by the application fall within the established alignment tolerance limits, demonstrating that the application is capable of providing consistent and technically acceptable alignment corrections. Therefore, the developed alignment calculation application is suitable for use as a supporting tool in the boiler fan coupling alignment process at PLTU Banten 1 Suralaya.

Keywords: *Alignment, Boiler Fan, Double Face Dial, 3D CAD*