

EVALUASI EFEKTIVITAS MESIN *LASER DIODE-SUBMOUNT* BERDASARKAN PERHITUNGAN *OVERALL EQUIPMENT EFFECTIVENESS* DAN *SIX BIG LOSSES* PADA PROSES PRODUKSI *LASER DIODE 5.6* PADA PT. XYZ

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ABSTRAK

Penelitian ini bertujuan untuk mengevaluasi efektivitas mesin *Laser Diode Sub-Mount* (LDSM) pada proses produksi *Laser Diode 5.6* di PT. XYZ menggunakan metode *Overall Equipment Effectiveness* (OEE) serta analisis Enam Kerugian Besar. Data yang dianalisis meliputi keluaran produksi, jumlah produk cacat, waktu henti, serta waktu operasi efektif mesin. Perhitungan OEE dilakukan melalui tiga komponen utama, yaitu ketersediaan, kinerja, dan kualitas. Analisis Enam Kerugian Besar digunakan untuk mengidentifikasi sumber utama penurunan efektivitas selama proses produksi. Hasil penelitian menunjukkan bahwa nilai rata-rata OEE sebesar 64,74%, yang masih berada di bawah standar kelas dunia sebesar 85%. Nilai ketersediaan sebesar 82,16%, kinerja 83,74%, dan kualitas 94,10% memperlihatkan bahwa efektivitas mesin terutama menurun akibat kecepatan produksi yang tidak stabil serta tingginya waktu henti. Analisis kerugian juga menunjukkan bahwa kerugian akibat penurunan kecepatan dan kerusakan mesin merupakan faktor dominan yang memengaruhi performa mesin.

Kata kunci: OEE, Enam Kerugian Besar, *Laser*, Semikonduktor, Efektivitas

EVALUATION OF EFFECTIVENESS OF A DIODE- SUBMOUNT LASER MACHINE BASED ON OVERALL EQUIPMENT EFFECTIVENESS AND SIX BIG LOSSES IN 5.6 DIODE LASER PRODUCTION PROCESS AT PT. XYZ

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ABSTRACT

This study aims to evaluate the effectiveness of the Laser Diode Sub-Mount (LDSM) machine in the production process of 5.6 Laser Diodes at PT. XYZ using the Overall Equipment Effectiveness (OEE) method and the Six Big Losses analysis. The analyzed data include production output, defective units, downtime duration, and effective machine operating time. OEE evaluation is carried out through three main components: availability, performance, and quality. The Six Big Losses analysis is used to identify the main sources of effectiveness reduction throughout the production process. The results show that the average OEE value is 64.74%, which remains below the world-class standard of 85%. The availability value of 82.16%, performance of 83.74%, and quality of 94.10% indicate that machine effectiveness is primarily reduced by unstable production speed and significant downtime. Furthermore, loss analysis reveals that reduced speed loss and breakdown loss are the dominant contributing factors.

Keywords: OEE, Six Big Losses, Laser, Semiconductor, Effectiveness