

**ANALISIS KINERJA MESIN BANDSAW MILL MENGGUNAKAN
TOTAL PRODUCTIVE MAINTENANCE PADA
PT ALIS JAYA CIPTATAMA**

Evan Febrianto¹, Yohanes Anton Nugroho²

Email: ¹lirfan21927@gmail.com, ²yohanesanton@uty.ac.id

¹Program Studi Teknik Industri, Fakultas Sains & Teknologi,
Universitas Teknologi Yogyakarta

²Program Studi Teknik Industri, Fakultas Sains & Teknologi,
Universitas Teknologi Yogyakarta

Abstrak

PT Alis Jaya Ciptatama merupakan salah satu produsen *furniture*. Mesin produksi *band saw soft mill* yang digunakan akan mengalami kerusakan dan penurunan kinerja seiring dengan semakin bertambahnya usia mesin. Proses pergantian *bearing set* memerlukan waktu *downtime* 40 jam dalam satu mesin *band saw soft mill* per tahun. Selain itu juga terdapat *downtime* proses pergantian gergaji yang rusak memakan waktu 124 jam per tahun. Penelitian ini untuk mengukur efektivitas mesin dengan menggunakan metode *overall equipment effectiveness* (OEE). Untuk mengetahui kegagalan terbesar dapat diketahui menggunakan *six big losses* dan dianalisis menggunakan *Failure Mode and Effect Analysis*(FMEA) untuk memastikan komponen yang menjadi kendala terbesar. Objek dalam penelitian ini yaitu mesin *band saw soft mill* yang merupakan mesin pemotong glondongan kayu. Hasil pengukuran efektivitas menunjukkan bahwa rata-rata nilai *availability* yaitu 96,17%, *performance efficiency* 82,15% dan *rate of quality* 86,93% sehingga nilai OEE yaitu 68,8%. Nilai OEE tersebut belum memenuhi syarat standar OEE ideal yakni sebesar 85%. Kemudian dilakukan perbaikan dengan mengukur *six big losses* untuk mengetahui kontribusi masing-masing *losses*. Berdasarkan analisis dengan menggunakan FMEA didapat nilai RPN terbesar untuk kategori *breakdown losses* yaitu 336 pada jenis kegagalan *bearing* kocak dan untuk kategori *reduced speed losses* yaitu 140 pada jenis kegagalan kecepatan mesin berkurang. Penanggulangan kegagalan pada bearing kocak yaitu melakukan perawatan berupa *preventive maintenance* secara berkala setiap seminggu sekali, sedangkan untuk kecepatan mesin berkurang harus diatasi dengan memastikan kualitas bahan baku sesuai standar dengan meminimalkan kadar air pada bahan baku.

Kata Kunci: TPM, OEE, Six Big Losses, FMEA.

PERFORMANCE ANALYSIS OF BANDSAW MILL MACHINE USING TOTAL PRODUCTIVE MAINTENANCE IN PT ALIS JAYA CIPTATAMA

ABSTRACT

PT Alis Jaya Ciptatama is one of the furniture manufacturers. The band saw soft mill production machine would experience damage and a decrease in performance along with the increasing age of the machine. Changing bearing sets requires 40 hours of downtime in one band saw soft mill machine per year. In addition, there is also downtime in replacing a broken saw which takes 124 hours per year. This study measures the machine's effectiveness by using the overall equipment effectiveness (OEE) method. To find out the biggest failure, it can be known using six significant losses and analyzed using Failure Mode and Effect Analysis (FMEA) to ensure the component that is the biggest obstacle. The object of this research is a band saw soft mill machine, a wood cutting machine. The effectiveness measurement results show that the average availability value is 96.17%, performance efficiency is 82.15%, and the quality rate is 86.93%, so the OEE value is 68.8%. The OEE value does not meet the requirements of the ideal OEE standard, which is 85%. Then improvements were made by measuring the six significant losses to determine the contribution of each loss. Based on the analysis using FMEA, the immense RPN value is obtained for the breakdown losses category, which is 336 for the loose bearing failure type, and for the reduced speed losses category, which is 140 for the reduced engine speed failure type. Overcoming failures on loose bearings is to carry out preventive maintenance regularly once a week. At the same time, the reduced engine speed must be overcome by ensuring the quality of raw materials according to standards by minimizing the moisture content of the raw materials.

Keywords: *TPM, OEE, Six Big Losses, FMEA.*

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