

Abstrak

PT. XYZ adalah perusahaan yang bergerak dibidang industry manufaktur dengan hasil output produksi berupa *Blank Part*. Memasuki era revolusi industri 4.0 dimana teknologi telah menjadi basis dalam kehidupan manusia. Segala hal menjadi tanpa batas dan tidak terbatas, tingkat efisiensi dan efektifitas pada perusahaan industry dalam memenuhi permintaan customer mengalami peningkatan. Pada kenyataannya berbagai faktor kendala produksi sering terjadi hingga mengalami penurunan efektifitas dan efisiensi mesin saat produksi berlangsung. Penelitian ini bertujuan untuk menganalisis dan menghitung efektifitas mesin pemotong koil baja dan mencari penyebab kegagalan mesin dengan menggunakan metode *Overall Equipment Effectiveness* (OEE) dan *Failure Mode Effect Analysis* (FMEA), mengidentifikasi faktor-faktor penyebab rendahnya efektifitas mesin dan memberikan solusi perbaikan untuk meningkatkan efektifitas kinerja mesin pemotong koil baja. Penelitian ini dilakukan pada lini produksi pemotongan *blanking* dengan data yang digunakan adalah *planned downtime* dan *unplanned downtime*. Keseluruhan data tersebut diolah dengan menggunakan metode OEE dan dianalisis dengan fishbone diagram dan metode FMEA. Hasil dari penelitian ini menunjukkan rata-rata nilai OEE mesin pemotong koil baja pada bulan Oktober 2019 – Maret 2020 sebesar 72,83% berada dibawah nilai ideal ($\leq 85\%$) sehingga efektifitas mesin pemotong koil baja adalah rendah. Faktor penyebab utama adalah nilai *Performance ratio* yang berada dibawah nilai ideal ($\leq 90\%$) yang disebabkan oleh *Idling and minor stopages losses* dan *reduce speed losses* yaitu *Punch and dies* lemah dan faktor lingkungan bersuhu tinggi dan mati listrik. Perbaikan yang perlu dilakukan adalah perbaikan compressor dan pergantian rantai yang sering aus dengan rantai baru, pembuatan jadwal perawatan berdasarkan skala kerusakan pada mesin, perbaikan ventilasi udara sesuai kebutuhan suhu yang nantinya akan di terapkan, dan perusahaan dapat melakukan penambahan kapasitas genset sesuai kebutuhan listrik pabrik pada saat mati lampu.

Kata kunci: *Overall Equipment Effectiveness, Failure Mode Effect Analysis, Idling and minor stopages losses* dan *reduce speed losses*

Abstract

PT. XYZ is a company engaged in the manufacturing industry with production output in the form of a blank part. Entering the era of the 4.0 industrial revolution where technology has become the basis of human life. Everything becomes limitless and unlimited, the level of efficiency and effectiveness of industrial companies in meeting customer demands has increased. In fact, various factors of production constraints often occur, resulting in decreased effectiveness and efficiency of machines during production. This study aims to analyze and calculate the effectiveness of a steel coil cutting machine and find the causes of machine failure using the Overall Equipment Effectiveness (OEE) and Failure Mode Effect Analysis (FMEA) methods, identify factors that cause low machine effectiveness and provide repair solutions to increase effectiveness. the performance of the steel coil cutting machine. This research was conducted on a blanking cutting production line with the data used were planned downtime and unplanned downtime. All of the data were processed using the OEE method and analyzed using the fishbone diagram and the FMEA method. The results of this study show that the average OEE value of steel coil cutting machines in October 2019 - March 2020 is 72, 83% is below the ideal value ($\leq 85\%$) so that the effectiveness of steel coil cutting machines is low. The main contributing factor is the Performance ratio value which is below the ideal value ($\leq 90\%$) which is caused by idling and minor stopages losses and reduced speed losses, namely weak punch and dies and environmental factors with high temperature and power outages. Repairs that need to be done are repairing compressors and replacing chains that are often worn out with new chains, making maintenance schedules based on the scale of damage to the engine, repairing air vents according to temperature requirements which will later be applied, and companies can add generator capacity according to the factory's electrical needs at when the lights go out.

Keywords: *Overall Equipment Effectiveness, Failure Mode Effect Analysis, Idling and minor stopages losses* and *reduce speed losses*