

## ABSTRAK

Mesin CNC *Cincinnati Milacron DGMP* merupakan mesin CNC 5 Axis buatan Amerika Serikat yang bergerak di bidang proses produksi *parts* pesawat terbang. Selama periode produksi 2018, mesin CNC *Cincinnati Milacron DGMP* mengalami *downtime* selama 1.582,79 jam dari total waktu kerja operasi mesin selama 7.114,89 jam sehingga menyebabkan rasio *downtime* mesin meningkat. PT. XYZ telah menerapkan *Total Productive Maintenance* (TPM) namun hasilnya belum maksimal. Penelitian ini bertujuan mengukur tingkat efektivitas mesin CNC *Cincinnati Milacron DGMP* dengan *Total Productive Maintenance* (TPM) menggunakan metode *Overall Equipment Effectiveness* (OEE) dan melakukan *improvement* berdasarkan hasil dari nilai OEE. Sasaran penerapan *Total Productive Maintenance* (TPM) adalah tercapainya *zero breakdown*, *zero defect* dan *zero accident* sepanjang siklus hidup dari sistem produksi. Perhitungan nilai OEE pada tahun 2018 adalah 79%. Nilai tersebut adalah nilai OEE yang rendah. Faktor yang mempengaruhi rendahnya nilai OEE adalah faktor dari *performance*. Peningkatan indikator nilai *performance* dan nilai OEE dilakukan dengan penggantian *cylinder hydraulic arm*. *Improvement* yang dilakukan berupa penggantian *cylinder hydraulic arm* dengan spesifikasi 125x71x190st dengan model FF-SB-1TC125BB190ABD-N. Dengan dilakukan *improvement* tersebut, maka kerja dari *cylinder hydraulic* lebih efisien sebesar 43% dari sebelum dilakukan *improvement*. Terjadi peningkatan nilai OEE setelah dilakukan penggantian *arm cylinder hydraulic*, peningkatan nilai OEE sebesar 9%.

**Kata Kunci:** *downtime*, *total productive maintenance* (TPM), *overall equipment effectiveness* (OEE), *improvement*, *hydraulic cylinder*

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**IMPROVEMENT HYDRAULIC CYLINDER FF-SB-1CA125BB190ABD-N  
USING OVERALL EQUIPMENT EFFECTIVENESS (OEE)  
ON CNC CINCINNATI MILACRON DGM MACHINE**

**ABSTRACT**

*CNC Cincinnati Milacron DGMP machine is a 5 Axis CNC machine made in the United States which is engaged in the production process of aircraft parts. During the 2018 production period, the CNC Cincinnati Milacron DGMP machine experienced 1,582.79 hours of downtime from the total machine operating time of 7,114.89 hours thereby causing the machine downtime ratio to increase. PT. XYZ has implemented Total Productive Maintenance (TPM) but the results have not been maximized. This study aims to measure the effectiveness of the CNC Cincinnati Milacron DGMP machine with Total Productive Maintenance (TPM) using the Overall Equipment Effectiveness (OEE) method and make improvements based on the results of the OEE value. The target of implementing Total Productive Maintenance (TPM) is to achieve zero breakdown, zero defects and zero accidents throughout the life cycle of the production system. The calculated OEE value in 2018 is 79%. This value is a low OEE value. The factor that affects the low OEE value is the factor of performance. Increasing the performance value indicator and OEE value is carried out by replacing the hydraulic arm cylinder. Improvements were made in the form of replacing the hydraulic arm cylinder with 125x71x190st specifications with the FF-SB-ITC125BB190ABD-N model. With this improvement, the work of the hydraulic cylinder is 43% more efficient than before the improvement. There was an increase in the OEE value after replacing the hydraulic arm cylinder, the OEE value increased by 9%.*

**Keyword:** *downtime, total productive maintenance (TPM), overall equipment effectiveness (OEE), improvement, hydraulic cylinder*