

***ANALYSIS OF THE EFFECT OF VARIABLE FREQUENCY
DRIVE (VFD) FREQUENCY VARIATIONS ON THE
ROTATIONAL SPEED, CURRENT, AND OPERATING
EFFICIENCY OF A THREE-PHASE INDUCTION MOTOR IN
THE FIBER LINE AREA AT PT. INDAH KIAT PULP &
PAPER***

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ABSTRACT

This study analyzes the effect of Variable Frequency Drive (VFD) frequency variation on the rotational speed, current, and efficiency of a three-phase induction motor in the Fiber Line Area at PT. Indah Kiat Pulp & Paper. The object is a 400 kW three-phase induction motor Controlled by a VFD using Voltage/Frequency (V/f) Control. The research uses literature study, field observation, operational data collection, and descriptive and quantitative analysis. The analyzed frequencies are 25, 30, 35, 40, 45, and 50 Hz. The results show that increasing VFD frequency increases motor speed from 496 rpm at 25 Hz to 993 rpm at 50 Hz and increases current from 170 A to 423 A

Keywords: *Variable Frequency Drive, three-phase induction motor, rotational speed, current, efficiency.*