

**ANALISIS PENGARUH PENGATURAN SUHU DAN SUHU
LUAR RUANGAN TERHADAP KONSUMSI DAYA
KOMPRESOR AIR CONDITIONER TIPE 10 PK
DI PT INDAH KIAT PULP & PAPER**

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ABSTRAK

Penelitian ini berjudul “Analisa pengaruh pengaturan suhu dan suhu Luar ruangan terhadap konsumsi daya Kompresor *air conditioner* tipe 10 pk Di pt indah kiat pulp & paper” Hasil penelitian menunjukkan bahwa konsumsi daya kompresor dipengaruhi oleh dua faktor utama, yaitu suhu lingkungan dan pengaturan suhu unit AC. Semakin tinggi suhu lingkungan, semakin besar daya yang dikonsumsi pada pengaturan suhu yang sama, sedangkan semakin tinggi pengaturan suhu (mendekati suhu lingkungan), semakin rendah daya yang dikonsumsi karena beban kerja kompresor semakin ringan. Konsumsi daya tertinggi tercatat pukul 13.30 pada pengaturan suhu 18°C sebesar 6417,29 Watt, sedangkan konsumsi daya terendah (saat kompresor masih aktif) tercatat pukul 07.30 pada pengaturan suhu 22°C sebesar 5822,15 Watt. Pada pengaturan suhu 24°C di jam-jam bersuhu lingkungan rendah, kompresor berhenti bekerja karena suhu ruangan telah mencapai *set point*. Tegangan listrik selama pengujian relatif stabil pada kisaran 373–378 Volt, menunjukkan bahwa variasi konsumsi daya lebih dipengaruhi oleh perubahan arus dibandingkan tegangan. Berdasarkan hasil tersebut, pengaturan suhu 20°C–24°C direkomendasikan sebagai kondisi operasi yang optimal untuk ruangan MCC.

Kata kunci: *Air Conditioner*, kompresor, konsumsi daya, suhu *set point*, suhu luar ruangan

**ANALYSIS OF THE INFLUENCE OF TEMPERATURE SETTINGS
AND OUTDOOR TEMPERATURE ON POWER CONSUMPTION
OF 10 PK TYPE AIR CONDITIONER COMPRESSORS AT PT
INDAH KIAT PULP & PAPER**

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ABSTRACT

This research is entitled "Analysis of the influence of temperature settings and outdoor temperature on power consumption of 10 pk type air conditioner compressors at PT Indah Kiat Pulp & Paper" The results show that compressor power consumption is affected by two main factors: ambient temperature and the AC's temperature setting. The higher the ambient temperature, the greater the power consumed at the same temperature setting, while the higher the temperature setting (closer to the ambient temperature), the lower the power consumed, since the compressor's workload becomes lighter. The highest power consumption was recorded at 1:30 PM with an 18°C setting, at 6,417.29 Watts, while the lowest power consumption (while the compressor was still active) was recorded at 7:30 AM with a 22°C setting, at 5,822.15 Watts. At a 24°C setting during hours with low ambient temperature, the compressor stopped operating because the room temperature had already reached the set point. Voltage remained relatively stable throughout testing, in the range of 373–378 Volts, indicating that variation in power consumption was driven more by changes in current than by voltage. Based on these findings, a

temperature setting of 20°C–24°C is recommended as the optimal operating condition for the MCC room.

Keywords: *Air Conditioner, compressor, power consumption, temperature set point, outdoor temperature*