

# Pengujian metode pengukuran flowrate pada cold storage melalui parameter sinyal discharge pressure compressor dengan variasi charging refrigerant = Experimental of measurement flowrate method In cold storage through discharge pressure signal compressor value with refrigerant charging variation

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## Abstrak

Flowrate merupakan parameter penting dalam sebuah sistem refrijerasi. Selama ini, pengukuran flowrate dianggap hal yang menyulitkan lantaran membutuhkan ketersediaan alat ukur. Oleh karena itu, berbagai alternatif pengukuran mulai dilakukan untuk mengatasi hal tersebut. Diantaranya adalah pengukuran flowrate melalui putaran motor pada kompresor torak. Dimana putaran tersebut dapat dibaca melalui sinyal tekanan keluaran kompresor yang kemudian diolah secara matematis untuk mendapatkan frekuensi dari putaran motor. Dalam hal ini, ada dua metode matematis yang digunakan untuk membaca frekuensi dari tekanan keluaran kompresor, yaitu Fast Fourier Transform (FFT) dan Chirp-Z Transform (CZT) dimana charging refrigeran divariasikan guna melihat pengaruhnya terhadap nilai flowrate yang didapat.

*Flowrate is important value in a refrigeration system. During this time, flowrate measurement is considered difficult because it requires the availability of measuring instruments. Therefore, various alternative measurement begun to overcome it. Such as measuring flowrate based on the compressor speed in which it can be read by discharge pressure signal of the compressor and then it processed mathematically to obtain the frequency. In this case, there are two mathematical methods are used to find the frequency of the compressor speed, they are Fast Fourier Transform (FFT) and Chirp-Z Transform (CZT), where the refrigerant charging was varied to see its effect on the flowrate that would be obtained.*