

Perancangan sistem chiller untuk laboratorium pengujian ac split kapasitas maksimal 7.9 kw = Design of chiller system for laboratorium of split ac testing with the maximum capacity of 7.9 kw

Fauzan Faturrahman Zulfickry, author

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Abstrak

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Laboratorium pengujian AC Split pelabelan energi membutuhkan sistem pendingin dan pemanas untuk mengatur kondisi udara di dalamnya menurut standar ASHRAE 37. Chiller dipilih sebagai pengatur kondisi udara di ruangan tersebut. Chiller yang digunakan dapat menyuplai air panas dan air dingin. Chilled water dihasilkan dari perpindahan kalor di evaporator. Sedangkan heated water berasal dari heat recovery dari kondenser water-cooled. Penelitian dilakukan dengan menggunakan data beban pendinginan yang telah didapatkan pada penelitian Untoro 2016 . Kemudian dilakukan studi literatur dan seleksi komponen menggunakan perangkat lunak. Hasil penelitian adalah komponen sistem chiller, komponen sistem hidronik, diagram P ID, dan gambar konstruksi dari sistem chiller. Oleh karena itu, sistem chiller untuk laboratorium pengujian AC Split kapasitas maksimal 7.9 kW telah dirancang.

ABSTRACT

Laboratorium for split air conditioner energy labelling requires cooling and heating systems to regulate its air into a stable condition according to ASHRAE 37 standard. A chiller is selected as the air conditioning system for the room. The chiller is able to supply chilled water and heated water simultaneously. Chilled water is produced through evaporator. While hot water is produced through heat recovery in the water cooled condenser. The research is conducted using cooling and heating load data of the room from the research of Untoro 2016 . The selection of components to fulfill the cooling and heating load is using selection software from the manufacturers. The result of the research is the finding of suitable chiller system components, hydronic system components, the drawing of P ID diagram and system construction. Thus the chiller system for for split air conditioner with the maximum capacity of 7.9 kW is designed.