ABSTRACT

Today, a lot of ice is used for people needs. For example, ice is mixed into drink water to make more delicious. Also, ice is used by fishermen to keep their fishes or others meat for a long time. Based on this facts, writer want to design an ice factory which is able to produce standard quality ice. The capacity of designed ice factory is 20 tons block ice per day.

In this design, writer observed a real ice factory in Pontianak, West Kalimantan, in order to know the refrigeration system and the ice making process. There are main components that designed for an ice factory's refrigeration system : compressor, condenser, expansion valve, and evaporator. Before design the main components, cooling load is calculated first. From analysis and calculation, the cooling load to produce 20 tons block ice is 71,58 kW. Then, the main components are selected and calculated depends on the cooling load. The selected main components are : reciprocating compressor, shell and tube condenser, thermostatic expansion valve, and bare tube evaporator.

From the design of ice factory, writer gets technical data for each main component of refrigeration system, such as : power of compressor is 21,2 kW, power of compressor driven motor is 47,5 kW, length of condenser is 2,35 m, length of evaporator is 1,93 m. Hopefully, with that data, its can be designed an efficient ice factory.