

*PLANNING A HATCH COOLING SYSTEM ON A TRADITIONAL FISHING BOAT TO  
TRANSPORT WHITE SHRIMP*

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*ABSTRACT*

*Shrimp is a type of seafood that does not last long and is easily damaged if placed in the open. Like storing it in the hold of a traditional fishing boat, some people usually use ice to cool the shrimp to keep it fresh, but this method is not effective and efficient because the ice melts quickly. This ship was previously used as a fishing vessel which had a hatch cooling system using ice cubes/ice blocks, but with its size being quite large, around 40 GT, this ship was chosen as a shrimp export vessel in large quantities. The type of shrimp that will be exported is vaname shrimp and this shrimp is dead, the export goal is that the shrimp must arrive fresh and maintain its quality. so refrigerant technology is needed. This refrigerant plan aims to be used to cool shrimp on traditional fishing boats according to the size of the ship's hold. The method used is to obtain data, then process and analyze the data. In planning the refrigerant system on this traditional fishing boat, the R22 refrigerant system used is a vapor compression system. Cooling room data with a total volume of 22.48 m<sup>3</sup>, using R22 refrigerant. The type of compressor used is Dorin 2Q-80VS, condenser type Bitzer K2923TB, with a zig-zag arrangement evaporator, for the expansion valve used is a capillary pipe type. the mass flow rate of the refrigerant obtained is 8789.67 kg/hour, the power required for the compressor is 167003.73 kJ/hour, the refrigerant fluid releases a certain amount of condensation heat of 195kJ/kg with a heat flow rate of 1713985.65 kJ/hour, the heat flow rate The evaporation is 88336.18 kcal/hour. By comparing the total  $q$  value on the wall and the resulting load with the  $q$  value on the evaporator, the cooling time from a temperature of 32°C to 2°C is 4 hours.*

*Keywords: Traditional Fishing Boat, Hatch, Cooling System*