

ABSTRACT

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LOAD ANALYSIS OF PLASTIC INJECTION COVER INNER LOWER HVAC COOLING PRODUCTS AND REQUIREMENTS FOR COOLING MACHINE EVAPORATOR

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Abstract

This study aims to analyze the cooling capacity of the cooling box products of Inner Cover Lower HVAC products made from Polypropylene (PP) type plastic. In addition, this study also analyzes the specifications of the air-cooled engine evaporator. This product cooler box uses an Air Conditioner ¾ PK with a vapor compression cycle that has a cooling effect and a heating effect. The cooling effect is served by a heat exchanger called the evaporator; the process that occurs in the evaporator is the change in the phase of the refrigerant / fluid from the liquid to vapor (evaporation / evaporation).

Evaporator specifications analyzed by type of water-cooled Fin coil using R-22 refrigerant. The method used to achieve the goal is through thermodynamic calculations and calculations on the evaporator. From the calculation results, the evaporator specification used is a Copper tube with a nominal diameter of 1/4 inch type L, Outer diameter of 0.25 in. (6.35mm), Inside diameter 0.20 in. (5.13 mm), and tube wall thickness 0.61 mm, Surface area of fins 0,00018834 m² with spacing between fins 1.2 mm, fin length 22 mm and width of fins 10 mm, total length of copper pipe 88,073 m, dimensions of evaporator used 410x210x50 mm.

Keywords: *R-22 refrigerant, Evaporator, Box cooler, Inner Cover Lower HVAC*