



**FINAL YEAR PROJECT REPORT  
DIPLOMA IN MECHANICAL ENGINEERING**

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**THE HEAT PUMP COMPONENTS AND STRUCTURAL  
ENGINEERING DRAWING BY AUTOCAD**

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## 1.1 Introduction

Heat pumps have been known for quite some time. By 1862, a Frenchman, Ferdinand Ph.E. Carre, a brother of Edmond Carre where was built a sulphuric acid-water absorption-type engine that was operated by a hand pump. His brother had registered several patents on an absorption heat pump working with ammonia and water. It is interesting to note that Ferdinand Carre described two types of machines: a periodically operating machine for the production of ice in households and a continuously operating machine for industrial application. He also described most of the various future applications such as ice fabrication, air conditioning, control of fermentation processes, for example during the production of fresh water from the sea, extraction of paraffin from crude oil, separation of salt solutions.

These absorption-type heat pumps were very reliable machines and were fabricated in large numbers by manufacturers in France, England and Germany for many industrial applications.

Most homes, food store, and large commercial buildings in the industrial societies have refrigerators or air conditioning plant. The principal different between the heat pump and the refrigerator is in the role they play as far as the user is concerned. On the one hand refrigerators and air conditioners provide useful cooling, whereas the heat pump provides useful heat.