

## **VAPOUR ABSORPTION REFRIGERATION TEST RIG (EE-1597)**

Vapor Absorption Refrigerator” earlier known as “Electrolux” refrigerator is a self contained refrigerator working on absorption technology.

In the absence of a compressor or pump, the circulation takes place by density difference. The system is pre-charged with three fluids namely water, ammonia and hydrogen. Hydrogen is used as an “inert gas” and does not undergo any phase change and heat transfer processes. Its purpose is to keep the pressure of the system constant.

It uses an electrically operated generator, where, the ammonia vapors dissolved in water are separated and pure ammonia vapors enter the condenser. In the condenser, the high pressure vapors reject its latent heat to the surroundings and get liquefied. The liquid ammonia expands through expansion device where its pressure and temperature is reduced and cold low pressure vapors enters the evaporator where it absorbs heat from the space to be cooled and then vaporized ammonia absorbs in water. This strong solution then enters the generator and the cycle repeats.

### **SCOPE OF EXPERIMENTATIONS:**

- ) To study about the Vapour Absorption Test Rig.
- ) To determine the coefficient of performance of Vapor Absorption Test rig.

### **UTILITIES REQUIRED:**

- ) Electricity 220V AC, Single Phase.
- ) Space required: 2 x 2 m.

### **TECHNICAL SPECIFICATIONS:**

- Gross Volume : 41 Ltrs.
- Refrigerant : Water, Ammonia, Hydrogen
- Generator : Electrically Heated
- Condensor : Natural Convection Type
- Evaporator : Natural Convection Type
- Temperature Sensors : RTD PT-100 type.
- Control panel : Digital Voltmeter: 0-300 Volt.  
: Digital Ammeter: 0-2 Amp.  
: Digital Temperature Indicator: 0-300°C  
(With multichannel switch)  
On/Off switch, Mains Indicator etc

- The whole set-up is well designed and arranged on a good quality painted structure.

