

AIR WATER HEAT PUMP TEST RIG (EE-1604B)

The Air to Water Heat Pump Test rig works on simple vapour compression refrigeration cycle and uses R134a as a refrigerant. It is environment friendly. The experimental air to water heat pump test rig consists of a compressor unit, air cooled condenser, evaporator, controlling devices and measuring instruments those are fitted on a stand and a control panel. The apparatus is fabricated in such a way; to refrigeration system hermetically sealed compressor is fitted on stand with the help of flexible foundation bolts to minimize vibrations. Electric power input to the compressor is given through thermostatic switch. The system is fabricated such that students can observe and study vapor compression cycle, its component principle & working. The arrangement of parts such that, all the parts are visible and working can be easily understood.

SCOPE OF EXPERIMENTATIONS:

-) To observe the working principle of air to water heat pump test rig.
-) To determine the coefficient of performance of heat pump Test rig.

UTILITIES REQUIRED:

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

**TECHNICAL SPECIFICATIONS:**

- **Compressor** : Hermetically sealed, Standard make
Emmulsion-coplend/equivalent
- **Condenser** : Coiled Tube Heat Exchanger acts as a condenser.
Copper coil is merged in water tank to cool down the
gas temp. Continuous water flow circulation is required
to extract the heat of gases.
- Expansion Device : Capillary Tube
- Evaporator : Air Cooled evaporator made out of copper pipe &
Aluminum fins of matching capacity with fan.
- Refrigerant : 134a Type
- Pressure Indication : 2 No.s dial type pressure gauges. One fitted at suction
side and another at discharge side
- Temperature Sensors : RTD PT-100 type (8Nos.)
Suitable filter/drier Make (Standard)
- 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.