Product Name : " BASIC HEAT PUMP DEMONASTRATOR "
Product Code : " R.A.C 10 "

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Description :

BASIC HEAT PUMP DEMONSTRATOR:-

AIM:-

Familiarisation with the function of a heat pump / refrigeration unit

- Familiarisation with the main components of a heat pump
- Measurement of process pressures

- Thermodynamic cycle

THEORY:

A heat pump extracts heat from a heat source and rejects heat to air or water at a higher temperature.

During summer, the heat extraction, or refrigeration effect, is the useful effect for cooling. In winter the rejected heat alone, or rejected heat plus supplementary heating from a heater form the useful effect for heating.

A heat pump is a packaged air conditioner or a packaged unit with a reversing valve or other changeover setup. A heat pump has all the main components of an air conditioner or package unit: fan, filters, compressor, evaporator, condenser, and a throttling device.

Heat Pump Cycle

p-h diagram (Thermodynamic cycle)

The apparatus for changing from cooling to heating or vice versa is often a reversing valve, in which the refrigerant flow to the condenser is changed to the evaporator.

Alternatively, air passage through the evaporator may be changed over to passage through the condenser. A supplementary heater is often provided when the heat pump capacity does not meet the required output during low outdoor temperatures.

R-22 and R-134a are the most widely used halocarbon refrigerants in new heat pumps.

TECHNICAL SPECIFICATION:-

This clearly laid out model demonstrates the principle of operation of a simple heat pump. Heat is transferred from one cylinder to another via heat exchange coils. The trainee can feel the "cold" and the "heat". The unit is equipped with 2 large manometers for displaying the refrigerant pressures to indicate the temperatures in the water tanks. The refrigerant used is environmentally friendly.

Specification

1. Functional model of a water-to-water heat pump.
2. Coiled pipe evaporator/condenser, Cu.
3. Piston compressor, thermostatic expansion valve, pressostat, sight glass, 2 manometers.
4. Refrigerant R134a, CFC-free.
5. Components bolted to metal sheet.
6. 230V, 50Hz, 1 phase
7. Piston compressor: power consumption: 97W at 10/32°C, refrigerating capacity: 222W at 5/32°C.