LAB ENGINEERING

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Product Name : DOMESTIC REFRIGERATOR TRAINER	**Product Code :** Conditioning0002

Description :

DOMESTIC REFRIGERATOR TRAINER

Technical Specification :

This Refrigerator Works on simple Vapour Compression Cycle. Continuously circulating, evaporating, and condensing a fixed supply of refrigerant in a closed system accomplish mechanical refrigeration. Evaporating occurs at a low temperature and low pressure while condensation occurs at a high temperature and pressure. Thus, it is possible to transfer heat from an area of low temperature (i. e. refrigerator cabinet) to an area of high temperature (i.e. kitchen) Beginning the cycle at the evaporator inlet the low pressure liquid expands, absorbs heat, and evaporates, changing to a low pressure gas at the evaporator outlet. The Compressor pumps this gas from the evaporator through the accumulator increases its pressure, and discharges the high pressure gas to the condenser accumulator is designed to protect the compressor by preventing slugs of liquid refrigerant from passing directly into the compressor. An accumulator should be included on all systems subjected to varying load conditions or frequent compressor cycling. In the condenser, heat is removed from the gas which then condenses and becomes a high pressure liquid. In some systems this high-pressure liquid drains from the condenser into the liquid storage or receiver tank. On other systems, both the receiver and the liquid line valve are omitted. A heat exchanger between and the liquid line and the suction line is also an option item which may or may not be includes in a given system design. Between the condenser and the evaporator an expansion device is located. Immediately preceding this device is a liquid line strainer/ drier which prevent plugging of the valve or tube by retaining scale, dirt and moisture. The flow of refrigerant into the evaporator is controlled by the pressure differential across the expansion device or, in the case of a thermal expansion valve, by the degree of superheat of the suction gas. Thus, the thermal expansion valve shown requires a sensor bulb located at the evaporator outlet. In any case, the flow of refrigerant into the evaporator load increase as the evaporator load increases. As the high pressure liquid refrigerant enters the evaporator it is subjected to a much lower pressure

due to the suction of the compressor and the pressure drop across the expansion device. Thus the refrigerant tends to expand and evaporate. In order to evaporate the liquid must absorb heat from the air passing over the evaporator.
Eventually the desired air temperature is reached and the thermostat or cold control will break the electrical circuit to the compressor motor and stop the compressor. As the temperature of the air through the evaporator rises, the thermostat or cold control remakes the electrical circuit. The compressor motor and starts, and the cycle continue

Capacity	:	165 Litters Minimum.
Refrigerator	:	PANASONIC/ VIDEOCON/WHIRPOOL/ GOGREJ/ LG OR ANY EQUIVALENT make.
Power Source	:	220- 240 V; 50HZ; 1 Phase, AC
Freezer	:	Ice Trays Provided Component Shelf provided Freezer door rack.
Refrigerator	:	Storage Shelves Provided Shelf-half adjustable/full folding provided Shelf Eggs provided Shelf Bottle provided Crisper Provided Glass Shelf Provided Capacity 142 Ltrs.
Heater for load	:	Provided.
Energy Meter Compressor	:	Provided
Energy Meter Heater	:	Provided
Pressure Gauges	:	2 Nos Provided 1 No. for suction gas pressure 1 No for discharge gas pressure
Temperature	:	Digital Temperature Indicator with selector to display refrigerant temperatures at salient points.
Refrigerant	:	R-134 a Non CFC & Environment friendly.

SET OF EXPERIMENTS

- To study construction and working of a domestic refrigerator
- To evaluate cooling capacity of the refrigerator at the ambient temperature.
- To evaluate the actual Co-efficient of Performance of the refrigeration system.
- To evaluate the theoretical Co-efficient of Performance of the refrigeration system.
- To plot the cycle on P-H & T-S charts.