

**Product Name :**  
Domestic Refrigerator Trainer

**Product Code :**  
NLAB-ENGINEERINGLB34002



**Description :**

Domestic Refrigerator Trainer

**Technical Specification :**

**PRODUCT DESCRIPTION & PRINCIPLE OF OPERATION**

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

## 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.

Capacity	Minimum.
Capacity	
Range of make.	RANGEONIC/ VIDEOCON/WHIRPOOL/ GOGREJ/ LG OR ANY EQUIVALENT
Power Source	220-240V, 50HZ; 1 Phase, AC
Freezer	Freezer Provided Component
Shelf	Shelf provided
Freezer door rack.	
Storage Shelves	Storage Shelves Provided
Shelf-half adjustable/full folding	Shelf-half adjustable/full folding provided
Shelf Eggs	Shelf Eggs provided
Shelf Bottle	Shelf Bottle provided
Crisper	Crisper Provided

Glass Shelf Provided	
Capacity 142 Ltrs.	
Rated for load	
Energy Meter Compressor	
Energy Meter Heater	
Pressure Gauges	
1 No. for suction gas pressure	
1 No for discharge gas pressure	
Digital Temperature Indicator with selector to display refrigerant temperatures at salient points.	
Refrigerant	
Non CFC & Environment friendly.	

## Naugralabequipments

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