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ANALYSIS OF SELF DESIGN HIGH TECH-REFRIGERATOR WITH NORMAL REFRIGERATOR

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ABSTRACT

Our refrigerator is an improved type of air refrigeration system in which a suitable working substance, refrigerant is used. Now a day's vapour compression refrigeration system is commonly used for all purposes. It is generally used for all industrial purposes from small domestic refrigerator to a big air conditioning plant. But In present scenario many consumer prefers to multipurpose appliances, which have better efficiency, quality, and low cost. In this paper I compared hi-tech refrigerator (self design) with normal refrigerator.

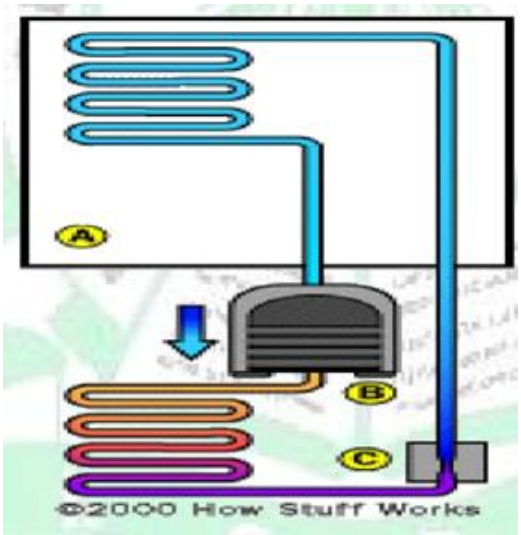
Key Words: *RO, SP, QC, QA, TQM, QMS, ISO, QMS, R&D*

I. INTRODUCTION

The fundamental reason for having a refrigerator is to keep food cold. Cold temperatures help food stay fresh longer. The basic idea behind refrigeration is to slow down the activity of bacteria (which all food contains) so that it takes longer for the bacteria to spoil the food.

For example, bacteria will spoil milk in two or three hours if the milk is left out on the kitchen counter at room temperature. However, by reducing the temperature of the milk, it will stay fresh for a week or two -- the cold temperature inside the refrigerator decreases the activity of the bacteria that much. By freezing the milk we can stop the bacteria altogether and the milk can last for months (until effects like freezer burn begin to spoil the milk in non-bacterial ways).

1.1 Parts of a Refrigerator



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II. ADVANTAGE AND DISADVANTAGE OF HI-TECH REFRIGERATOR WITH NORMAL REFRIGERATOR

Following are the advantages and disadvantages of our self design Hi-tech refrigerator system over Normal refrigerator

Advantages:-

1.It has smaller size for the given capacity of refrigerator

2. It has less running cost

3.It can be employed over a large range of temperatures.

4.The coefficient of performance is high

Disadvantage:-

1.)The Initial cost is high

2) The preventation of leakage of the refrigerant is the major problem in our self design hi tech refrigerator.

III. MECHANISM OF OUR SELF DESIGN HI-TECH REFRIGERATOR

3.1 Compressor

The low pressure and temperature vapour refrigerator from evaporated drawn into the compressor through the inlet or suction valve ,where it is compressed to a high pressure and temperature .This high pressure and temperature vapour refrigerant is discharge into the condenser through the delivery or discharge valve.

3.2 condenser

The condenser or cooler consists of coils of pipe in which the high pressure and temperature vapour refrigerant is cooled and condensed. The refrigerator ,while passing through the condenser, give up its latent heat to the surrounding condensing medium which is normally air or water

3.3 Receiver

The condensed liquid refrigerant from the condenser is stored in a vessel known as receiver from where it is supplied to the evaporator through the expansion valve or refrigerant control valve.

3.4 Expansion Valve

It is also called throttle valve or refrigerator control valve. The function of the expansion valve is to allow the liquid refrigerant under high pressure and temperature to pass at controlled rate after reducing its pressure and temperature. Some of the liquid refrigerant evaporates as it passes through the expansion valve, but the greater portion is vaporized in the evaporator at the low pressure and temperature.

3.5 Evaporator

An evaporator consists of coils of pipe in which the liquid-vapor refrigerant at low pressure and temperature is

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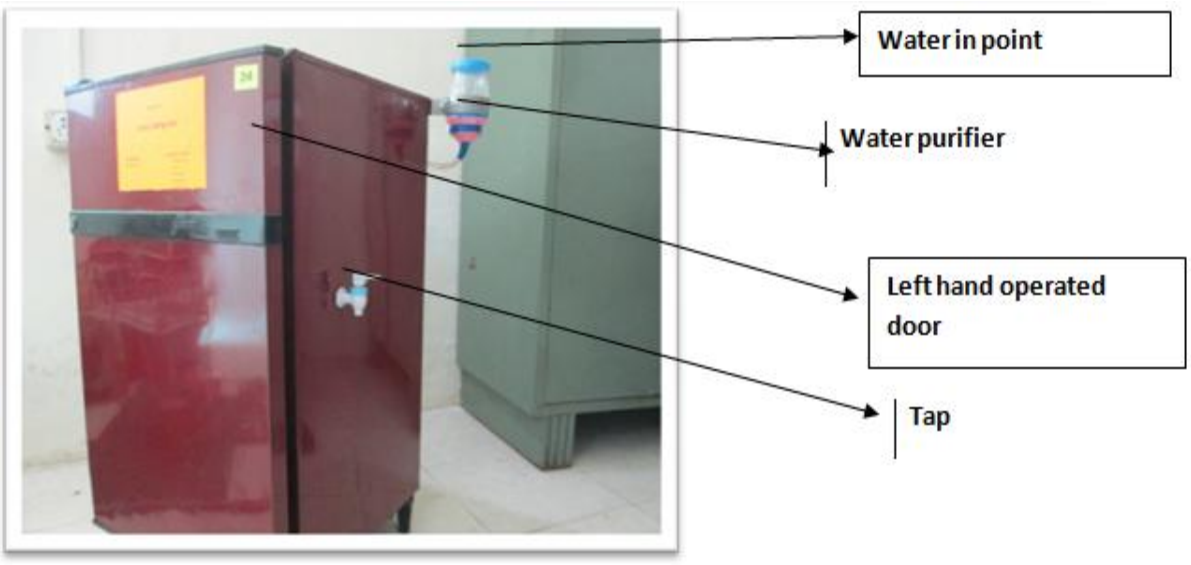
evaporated and changed into vapour refrigerant at low pressure and temperature. In evaporating, the liquid vapour refrigerant absorbs its latent heat of vaporization from the medium (Air, water or brine) Which is to be cooled.

3.6 Filter

Water filtration still depends on passing the water through fine pores or holes, only now the pore sizes have become very much smaller. The size of the pores or holes in a cloth is very large when compared to modern day filter media. While the pore size of the cloth would be measured in fractions of a mm or millimeter (1/1,000 or 0.001 Meter) a modern day water filter pore size is measured in Microns or a micrometer normally written as **µm** = 1 by a million or 0.000001 Meter. That is about a thousand times smaller the pore size of plain cloth.



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Picture-view of High Tech refrigerator

IV. DIFFERANCE BETWEEN NORMAL & HI-TECH REFRIGERATOR

The features of Hi-tech Refrigerator are different from other normal refrigerator, which is based on Indian culture, water problems and electricity problems.

4.1 Normal Refrigerator

1) In normal refrigerator, the refrigerator door is opened from right hand
2) Because of right hand opened door the food items are towards our left hand.But we Indians preferred to take out any food items and water bottles from right hand.
3) Here in normal refrigerator ,the grip of hands to hold items are not upto the mark.
4) Bottles are used in normal refrigerator for storing water.
5) Mostly in summer days,we frequently opened door in norml refrigerator for drinking water
6) In normal refrigerator it cool the water not purify water
7) In normal refrigerator there is no purifier is used.
8) Due to frequent opened of door of refrigerator, efficiency of refrigerator reduce day by decrease
9) Consumption of electricity is more in normal refrigerator.
10) In normal refrigerator the water is store in water bucket.
11) Overall cost of normal refrigerator is high.

V. HI-TECH REFRIGERATOR

1) In our Hi- tech refrigerator the door is opened from left hand.
2) Because of we Indian preferred to take out food from right hand so this type of refrigerator is more comfortable to sch peoples.
3) Grip of hands to hold item are more accurate in this types of refrigerator
4) Hence in hi tech refrigerator water tanks are used which carries more water as compared to normal refrigerator

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5) Efficiency of this types of refrigerator is more as compared to normal refrigerator
6) This types of refrigerators purify water also
7) Water purifier is available in this types of refrigerator.
8) Cooling and life of refrigerator is high of hi tech refrigerator as compared to normal refrigerator.
9) Consumption of electricity is less of hi tech refrigerator as compared to normal refrigerator.
10) Here in hitech refrigerator no need to open refrigerator door because tap is provide outside of door
11)This types refrigerator are ergonomics design

VI. CONCLUSION

In Normal refrigerator system in which the entire focus is on cooling ,but in our hi-tech refrigerant apart from cooling it's also increase the efficiency of cooling, purify water, reduce consumption of electricity, better in ergonomics, save our time etc, hence we can say overall performance of our self design hi-tech refrigerator is better with normal refrigerator.

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