ACADEMIC YEAR: - 2019 – 2020

AN INDUSTRIAL VISIT REPORT ON

SHREE PATEL ICE FACTORY

By The Students of Mechanical Engineering Department

Date of Visit: - 7TH SEPTEMBER 2019

We visited SHREE PATEL ICE FACTORY at 9:30 am to 1:00 pm.

A.Y.DADABHAI TECHNICAL INSTITUTE, KOSAMBA (R.S)

On receiving the call permission from PATEL ICE FACTORY, Ankleshwar, A.Y.Dadabhai Technical Institute, Kosamba Mechanical Engineering Department students with seven faculty members (Mr. Saurabh kapadiya, Mr. Yogesh Sakpal, Mr. Sandip patel,) went on an industrial visit to Patel Ice Factory on 7th September 2019. We all assembled at Ankleshwar GIDC at 9 am. We reached the plant at 9:00 am. An Ice plant head Mr. Ankur Patel received us at the entrance and gave a brief description related to production, different machineries used in plant and also talking about how to become an Entrepreneur. The visit came to an end at 1:00 pm. We left the premises at 1:30 pm. It was an informative, interesting and a successful visit. As students of Mechanical Engineering, We learned a refrigeration applications and about ice production also about entrepreneurship. We express our thanks to our department who permitted us to go on the visit, the faculty members who accompanied us and head of Ice Plant who explained entire plant from establishment and how to reach in market and develop successful business.

1. PLANT AND MACHINERY

They have latest state of the art manufacturing plants and latest machineries. There were total two plants in the factory which are working on "VCR (Vapour Compression System)".

Following are the units or machines of which factory is made of:-

SR NO	NAME OF PARTS/UNITS	QUANTITY
1	COMPRESSOR	2
2	CONDENSER	2
3	RECIEVER	2
4	EXPANSION VALVE	2
5	EVAPORATOR	2

2. MANUFACTURING PROCESS (VCR SYSTEM)

"SHREE PATEL ICE FACTORY" uses VCR system to manufacture ice from water. A vapour compression refrigeration system is an important type of air refrigeration system in which suitable working substance, termed as refrigerant, is used. It condenses and evaporates at pressure & temperature close to the atmosphere conditions. The refrigerants used for this purpose is AMMONIA (NH_3) in d specified factory. The refrigerant used, doesn't leave the system, but continues to circulate throughout the system alternately condenses and evaporates. In evaporating, the refrigerant absorbs heat from water space required to be freeze. While condensing, it gives out its latent heat to the circulating water of surface condenser in above specified industry.

ADVANTAGES:

- It has smaller size for the given capacity of refrigeration.
- It has less running cost.
- The coefficient of performance is quite high.

DISADVANTGES:

- Initial cost is high.
- The prevention of leakage of the refrigerant is the major problem.

3. TYPES OF MACHINARY

COMPRESSOR:-

The low pressure and temperature vapour refrigerant from evaporator is drawn into the compressor through its inlet or suction valve, where it is compressed to a high pressure and temperature .This high pressure and temperature refrigerant(NH_3) is discharged into the condenser through the delivery or discharge valve.

CONDENSER:-

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

RECIEVER:-

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

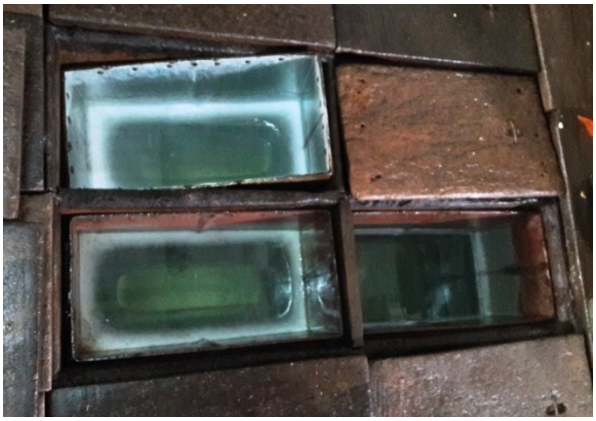
EXPANSION VALVE:-

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

EVAPORATOR:-

As evaporator consists of coils of pipe in which the liquid refrigerant at low pressure and temperature is evaporated and changed into vapour refrigerant at low pressure& temperature. In evaporating the liquid vapour refrigerant absorbs its latent heat of vaporization from the water which is to be freeze.

4. PHOTOGRPHS OF VISIT



5. POINTS STUDIED IN DETAIL

- Vapour compression cycle used in ice plant.
- Refrigerant used and its different properties.
- Working of complete vapour compression cycle used for production of ice on commercial basis.
- Use of brine solution as secondary refrigerant in evaporator.
- Working of open type reciprocating compressor.

6. STUDENTS FEEDBACK

Educational visit to "SHREE PATEL ICE FACTORY" organized by Department of Mechanical Engineering was very informative. The guiding staff both college staff as well as plant head Mr. ANKUR PATEL was very supportive to all students.

We hope that this visit will help us in our future practical life and bring a positive change in our thinking and practical behavior regarding education and specially engineering.

We, the students of Mechanical Engineering are extremely thankful to honorable staff members of Mechanical Engineering Department.

Signature of Staff

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