

(प्रतीकितन उपकरण) REFRIGERATION EQUIPMENT

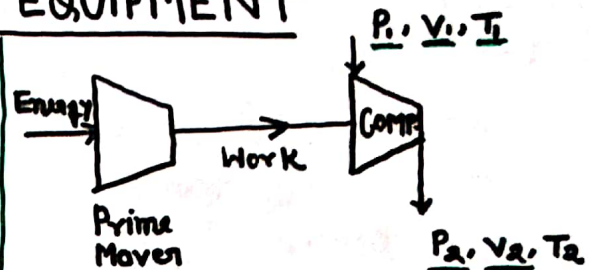
INTRODUCTION:-

- Used to transfer heat from one place to another place.
- To generate cooling effect working fluid has to pass over -

- | | |
|-----------------|---------------------|
| (a) Compressors | (c) Evaporators |
| (b) Condensers | (d) Expansion valve |

COMPRESSOR

- To compress Refrigerant for high pressure Vapour Refrigerant.
- To make sure continuous supply of the Refrigerant in the system.
- Runs through prime Mover.
(Motor (or) Engine)



→ Classifications of Compressors -

(1) Based on Working:-

- Reciprocating. (Less displacement, R-12, R-22)
- Rotary (Medium Condenser, R-21, R-14)
- Centrifugal (More displacement of Volume, R-11, R-12, R-113)

(2) Based on No. of Stroke:-

- Single Acting.
- Double Acting.

(3) Based on No. of Stages:-

- Single-Stage.
- Multi-stage.

(4) Based on Drive:-

- Direct Drive
- Belt Drive

(5) Based on location of Prime Movers:-

- Semi Hermetically Sealed
- Hermetically Sealed

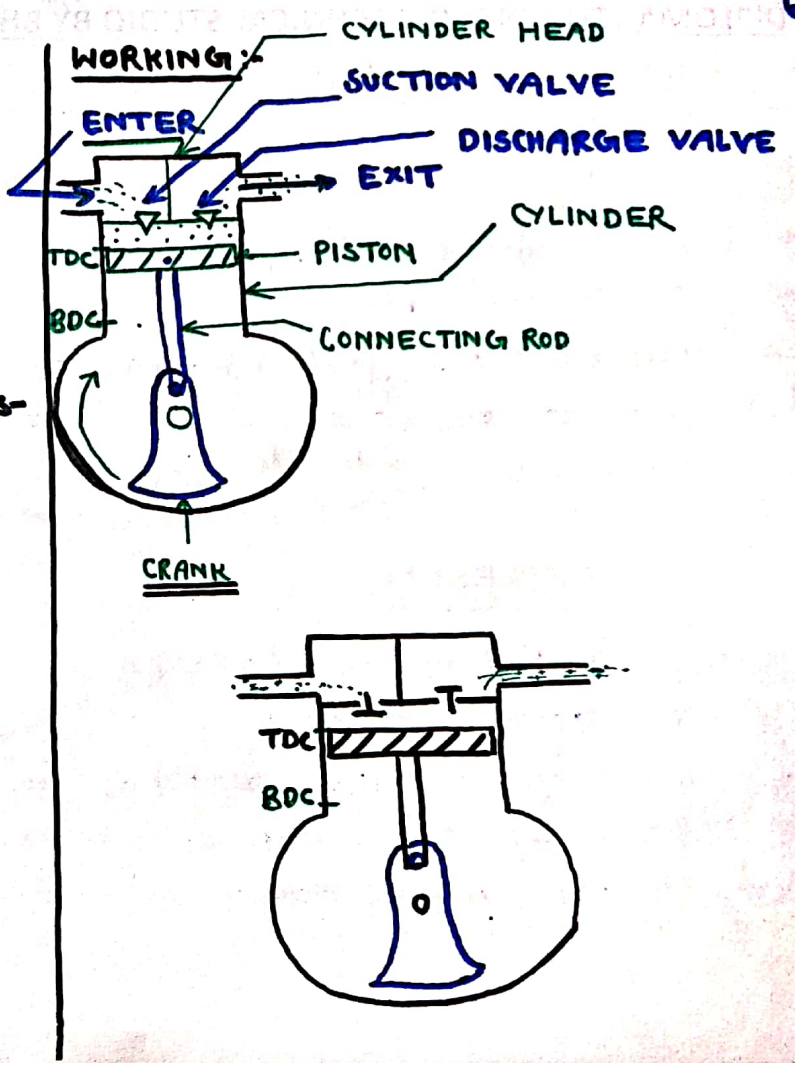
* But in General, there are 3 types-

- (1) Reciprocating Compressors.
- (2) Hermetically Sealed Compressors.
- (3) Rotary Compressors.

RECIPROCATING COMPRESSOR

$\frac{1}{12}$ kW to 150 kW

- Single Acting Vertical Comp.
- Double Acting Horizontal.

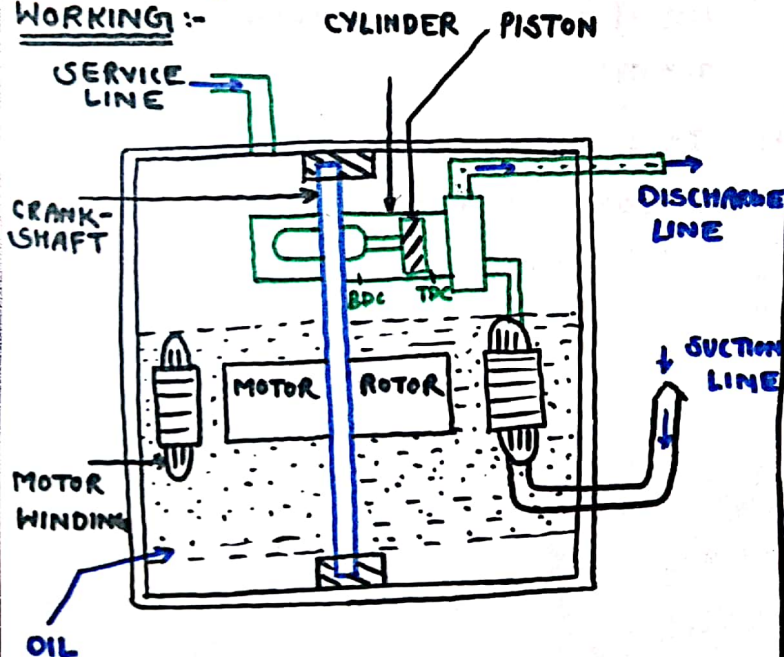


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HERMETICALLY SEALED COMPRESSOR:-

- The shaft of Compressor and Motor are same and packed in one unit. i.e. same casing.
- No leakage

WORKING:-



- It May be rotating, Reciprocating, Horizontal, Vertical.
- Used for Low RC like Domestic Refrigerator, Window A.C.

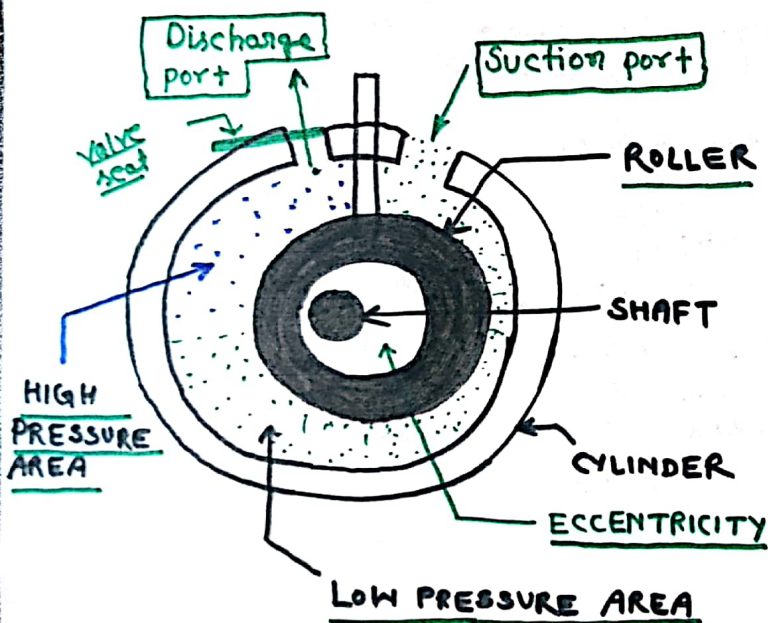
Advantages:-

- Leakage of the Refrigerant is Completely Avoided.
- Less Noisy in operation.
- The lubrication is simple as the motor and Compressor operates in a sealed space with the lubricating oil.
- It requires less space.

Disadvantages:-

- Maintenance is difficult because moving parts are not accessible.
- Extra pump is required for charging and evacuation of Refrigerant.

ROTARY COMPRESSOR



- Having High volume Capacity.
- Used for R-12, R-22, NH₃.
- A fixed cylinder, Roller and shaft.
- Roller is rotating for suction, compression & discharge.

- Compressed refrigerant at low pressure and temp. to high pressure and temp. continuously.
- Size of the compressor is very less due to high speed of drive motor.
- It is generally hermetically sealed compressor.