# · Refrigeration Equipments ·

## Compressor:-

### ① Hermitically shield compressor:-

→ In this the compressor and motor are installed on a steel shell.

→ occupies less space and noise generation is low.
→ Used in domestic application.
→ Maintenance is difficult and Motor cooling is achieved by rejecting heat to the suction vapour to Compressor. This results in superheating of vapour hence increasing work input and decreasing COP of unit

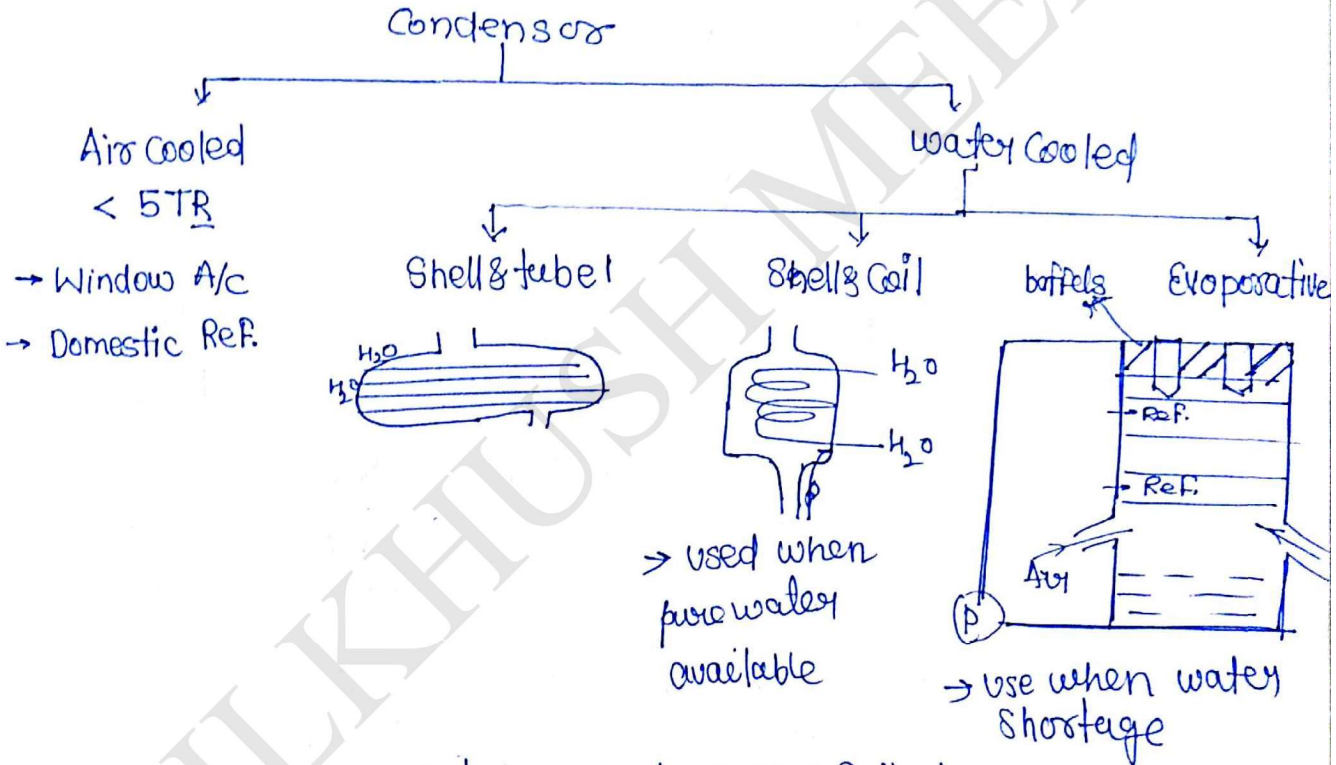
### ② Open type Compressor:-

→ Compressor and motor are install on seprate shafts and joined by a belt and pulley arrangment
→ Maintenance is easy and Motor cools by itself
→ Used in Industrial application.
→ occupies large space & Noise generation is high.

(3) Semi hermitic Compressor :-

Motor and Compressor are install on seprate shaft and shield seprately they are connected by belt and pulley arrangment. The merit and demerit are in b/w the above two Compressor.

## Condensor




* In both shell and tube and shell & Coil type Condensor the refrigerant flows through the shell. The flow through tube is avoided to avoid the pressure loss of refrigerant.

→ Shell and Coil type condensor can be used only when Pure water is available because of scaling problem in the coil.

→ Evaporative Condensor is used where there is shortage of water. Water absorbs heat from the refrigerent and is further cooled due to evaporative action as it comes in contact with the air.

* Heat rejection Factor / Heat rej. ratio :-

$$\text{Heat rejection ratio} = \frac{\dot{Q}_{rej}}{\text{R.E.}} = \frac{Q_{Rej}}{\text{R.E.}}$$

$$= \frac{W_{i/p} + \text{R.E.}}{\text{R.E.}}$$

Heat rejection ratio = $\boxed{HRR = \frac{1}{COP} + 1}$

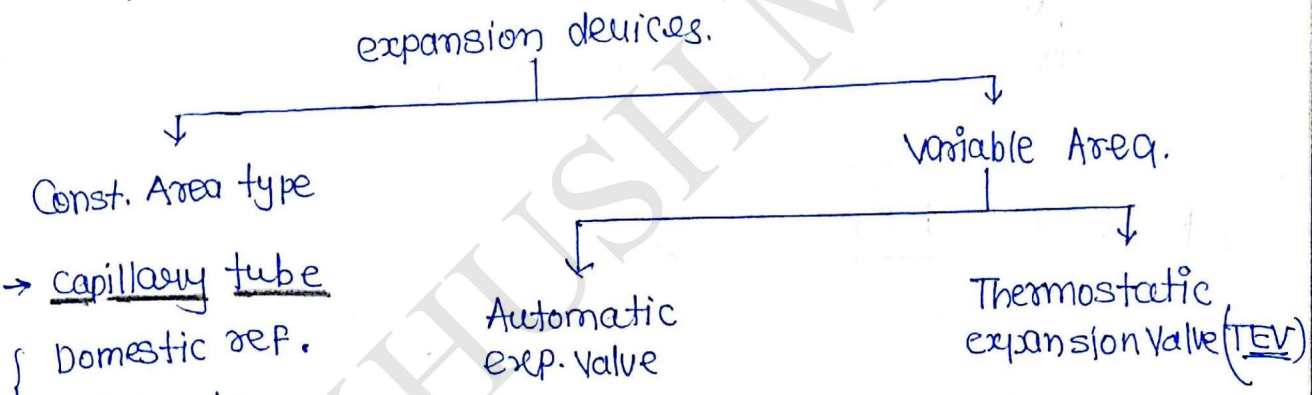
Heat rejection Ratio signifies the size of the Condensor. In hermitically shield unit since COP is less, HRR is high hence larger size Condensor are required.

## Evaporators :-

Coil type :- window A/c.

Plate type: Domestic Ref.

## Expansion devices




### Automatic expansion valve :-

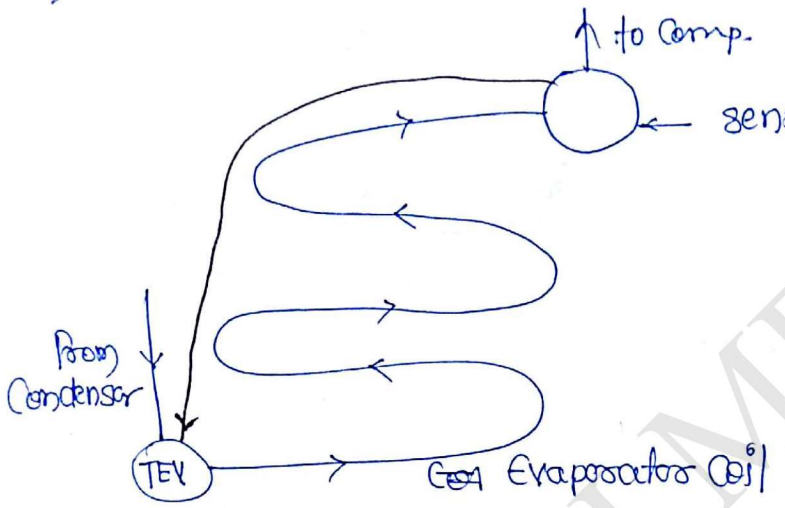
→ maintain Const. pressure in the evaporater
→ used when load is almost constant. (for eg. Milk chilling plants)

### Thermostatic expansion valve :-

→ Maintain Constant degree of superheat in evaporator.
→ used when load is variable (Res.

* → sensing bulb is locating at the exit of evaporator.

→ Alternative overfeeding & starving of refrigerant in the evaporator coil leads to hunting in the thermostatic expansion valve.




## Flash chamber:-