Compressors

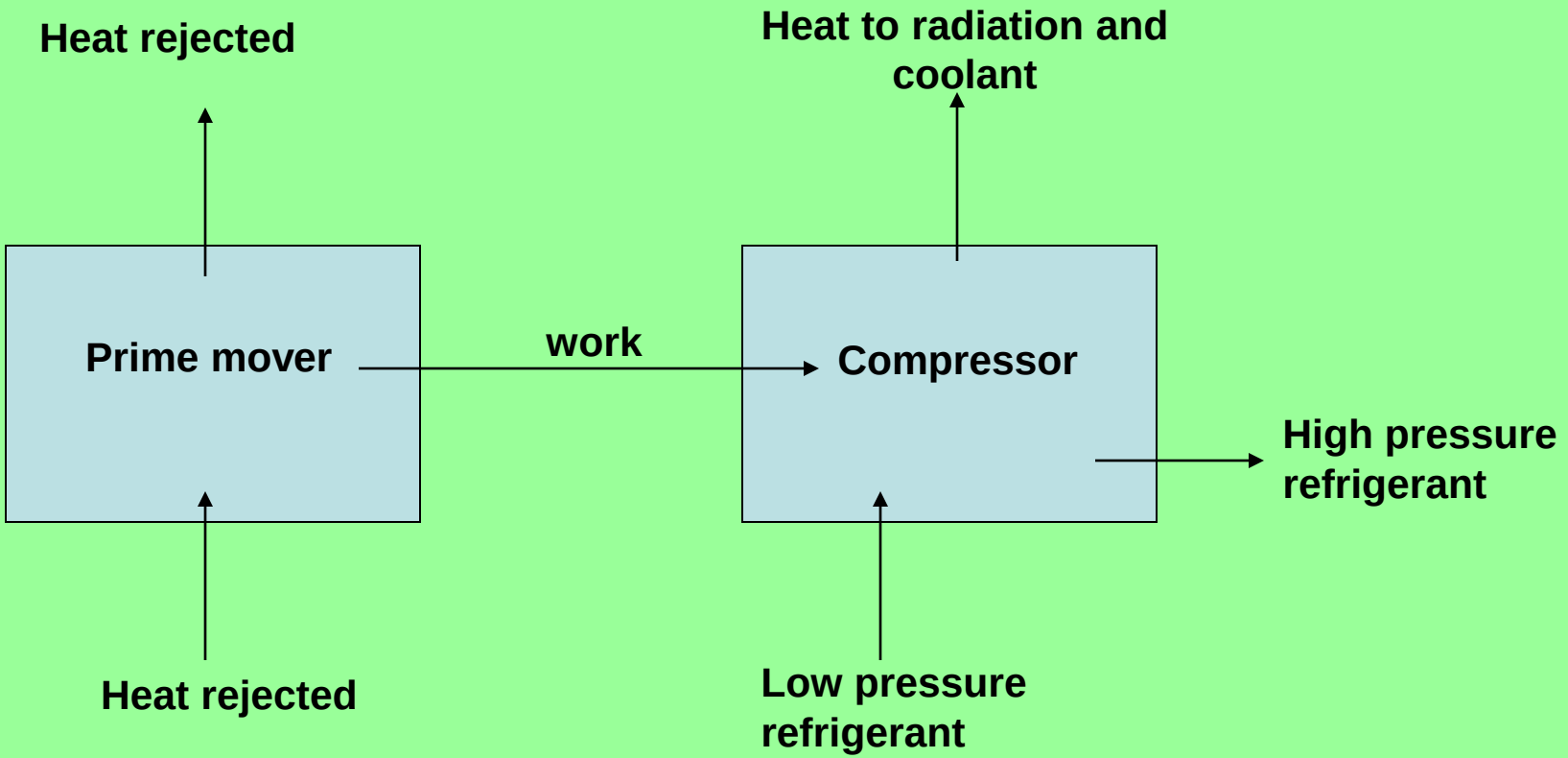
Compressors

- It is a machine used to compress the vapour refrigerant from the evaporator and to raise its pressure so that the corresponding saturation temperature is higher than that of the cooling medium.

- Considered the **heart of the refrigeration systems**

- **It takes in refrigerant gas at low pressure or evaporator pressure, compresses it and delivers the high pressure gas to condenser**

Working of a compressor



Classification of compressors

- **Reciprocating compressors**

  Suitable for refrigerants which require relatively small displacement volumes and high condensing pressures.

  Ex. R-12, R-22, R-717 etc

- **Centrifugal compressors**

  Suitable for refrigerants which require relatively large displacement volumes and low condensing pressures

  Ex. R-11, R-113 etc

- **Rotary compressors**

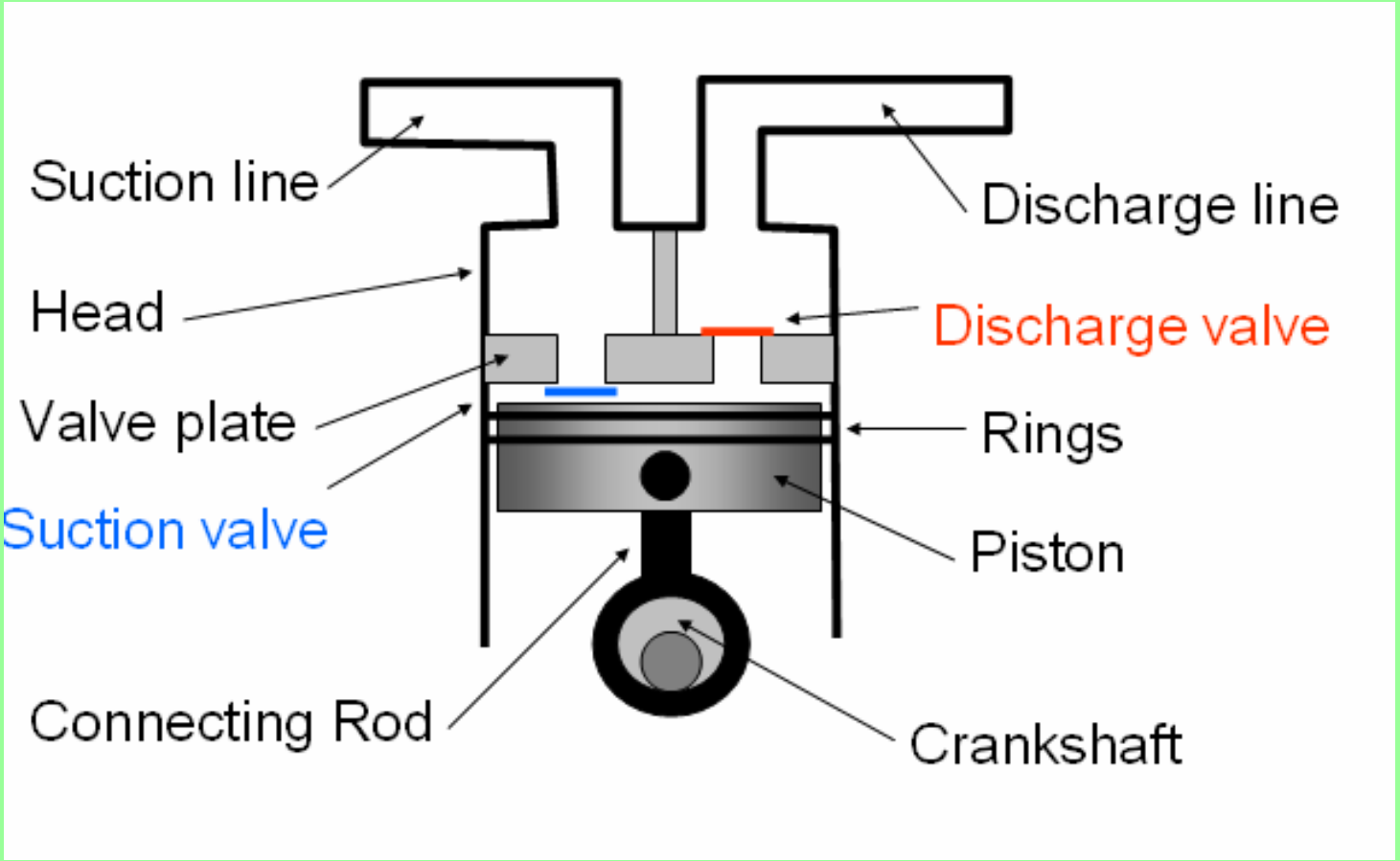
  Suitable for refrigerants having moderate or low condensing pressures

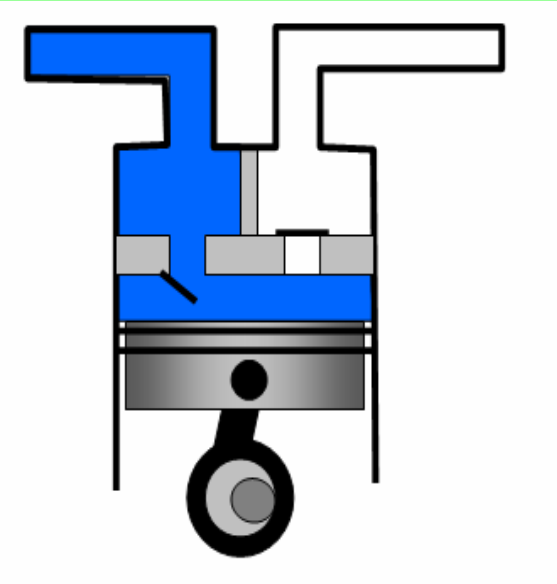
  Ex. R-21, R-114 etc

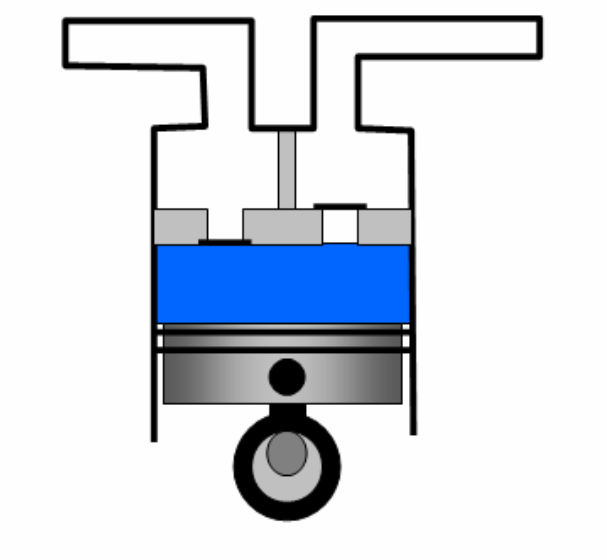
Reciprocating compressors

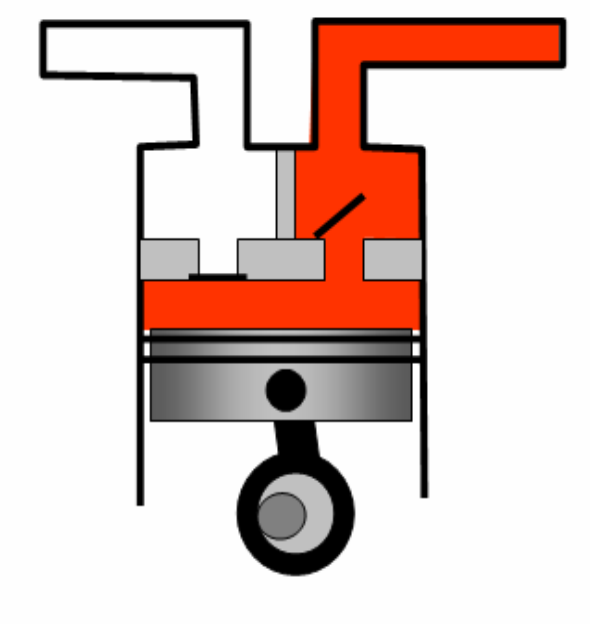
- Available in sizes as small as 1/12 kW used in small domestic refrigerators upto 150 kW for large capacity installations.
- The reciprocating compressors are classified as
  - Open type
  - Sealed or hermatic type
  - Semi-sealed or semi-hermatic type

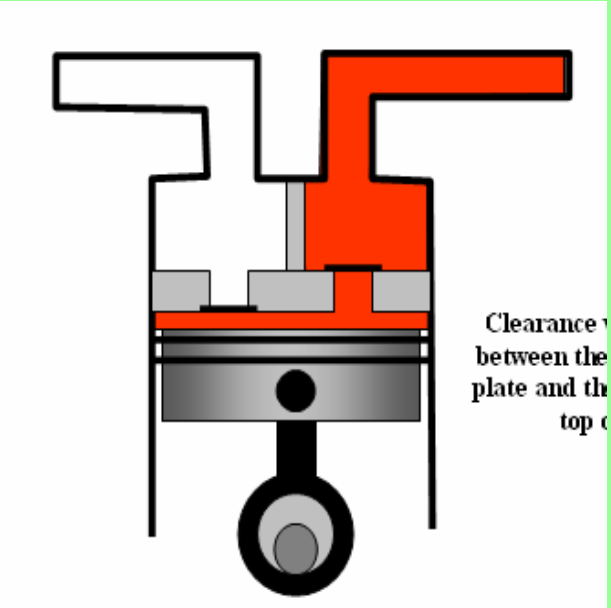
Reciprocating compressors










Clearance
between the
plate and th
top

Open type reciprocating compressors

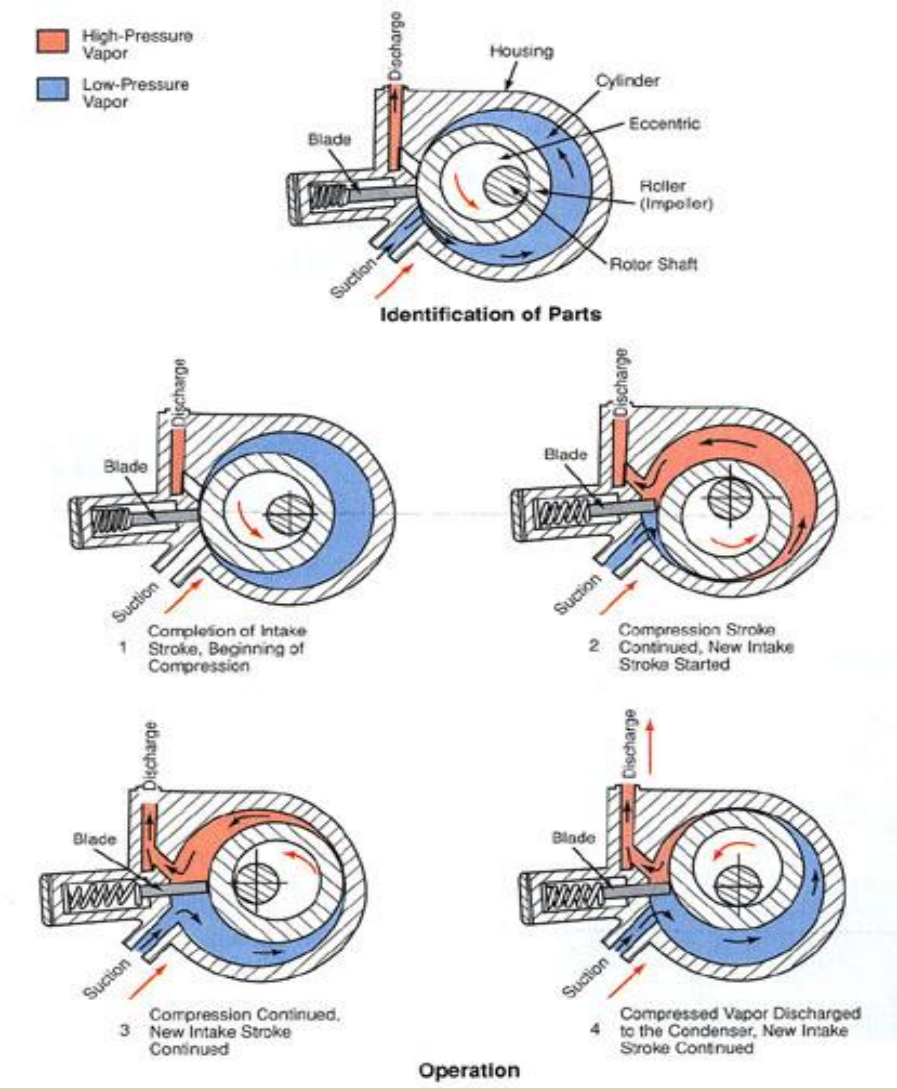
- It is flexible – by varying the speed of the compressor different capacities can be obtained.
- It can be operated by prime mover such as electric motor, petrol/diesel engine etc.
- In case of motor burn out, it can be easily changed.

Sealed or Hermatic

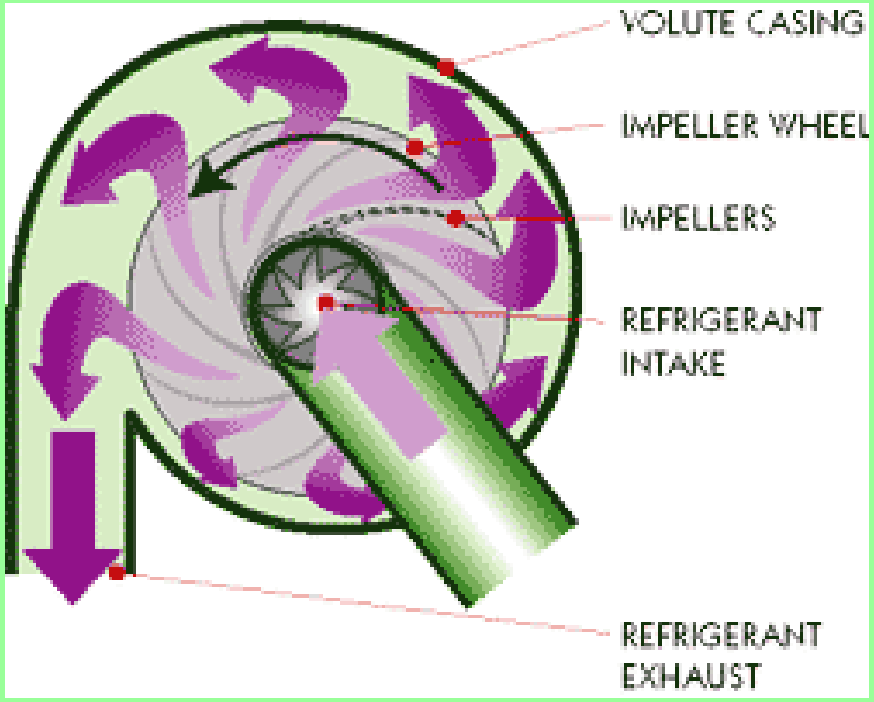
- Capacity – 0.4 kW to 110 kW
- Used for R-12 and R-22

Semi-sealed or semi-hermatic

Rotary compressors



Centrifugal compressors



Two stage compression