

Components of mechanical refrigeration systems

Refrigeration

- **Refrigeration**, or cooling process, is the removal of unwanted heat from a selected object, substance, or space and its transfer to another object, substance, or space. Removal of heat lowers the temperature and may be accomplished by use of ice, snow, chilled water or mechanical refrigeration.

- **Mechanical refrigeration**, is the utilization of mechanical components arranged in a "*refrigeration system*" for the purpose of transferring heat.
- **Refrigerants**, are chemical compounds that are alternately compressed and condensed into a liquid and then permitted to expand into a vapor or gas as they are pumped through the mechanical refrigeration system to cycle.
- Refrigerants evaporate or "boil" at much lower temperatures than water, which permits them to extract heat at a more rapid rate than the water on your finger.

components in a mechanical refrigeration system

- The **compressor** is a vapour compression pump which uses pistons or some other method to compress the refrigerant gas and send it on its way to the condenser.
- The **condenser** is a heat exchanger which removes heat from the hot compressed gas and allows it to condense into a liquid.
- The liquid refrigerant is then routed to the **metering device**. This device restricts the flow by forcing the refrigerant to go through a small hole which causes a pressure drop.
- The component where the evaporation takes place is called the evaporator.
- The **refrigerant** is then routed back to the compressor to complete the cycle.

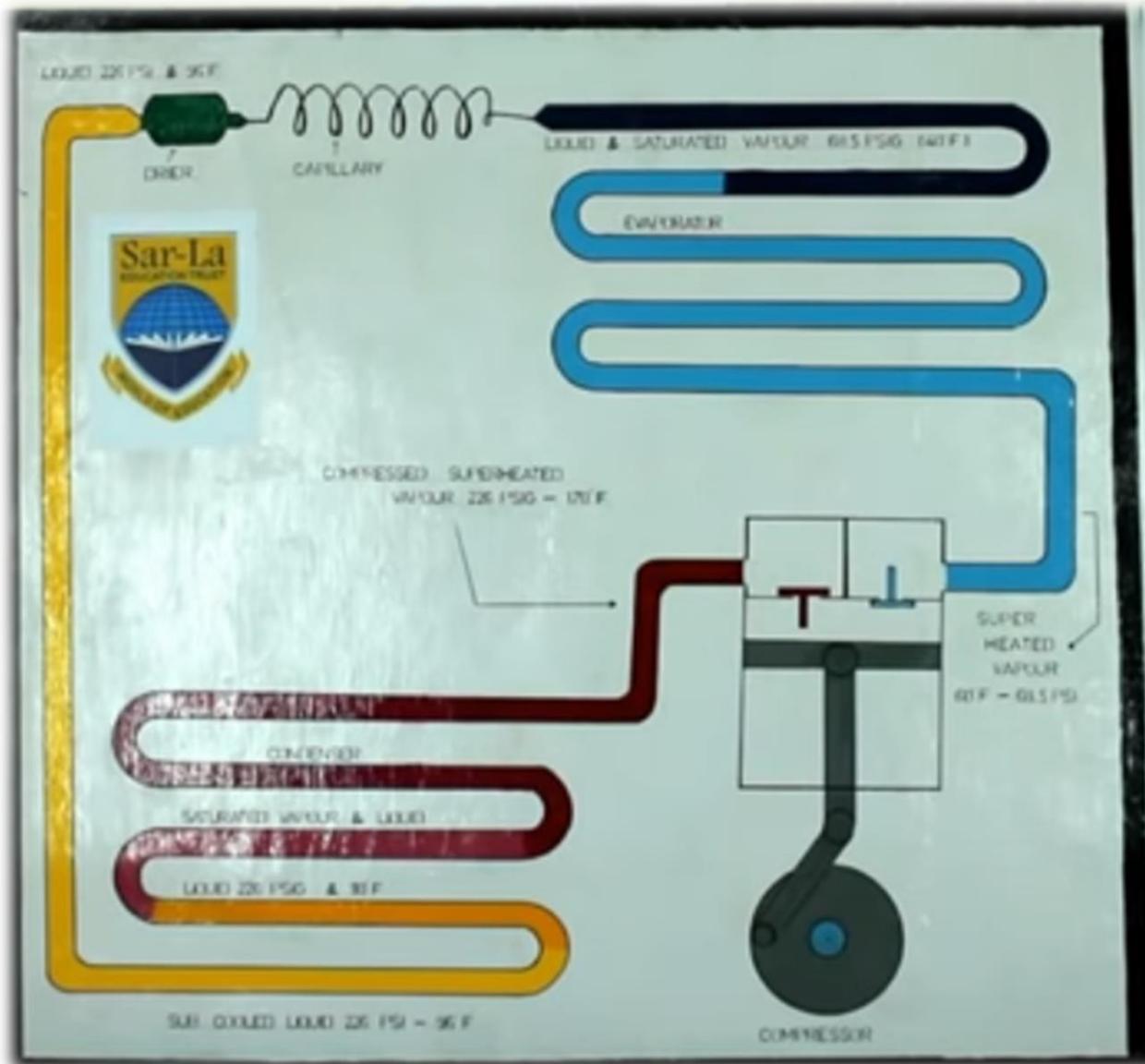
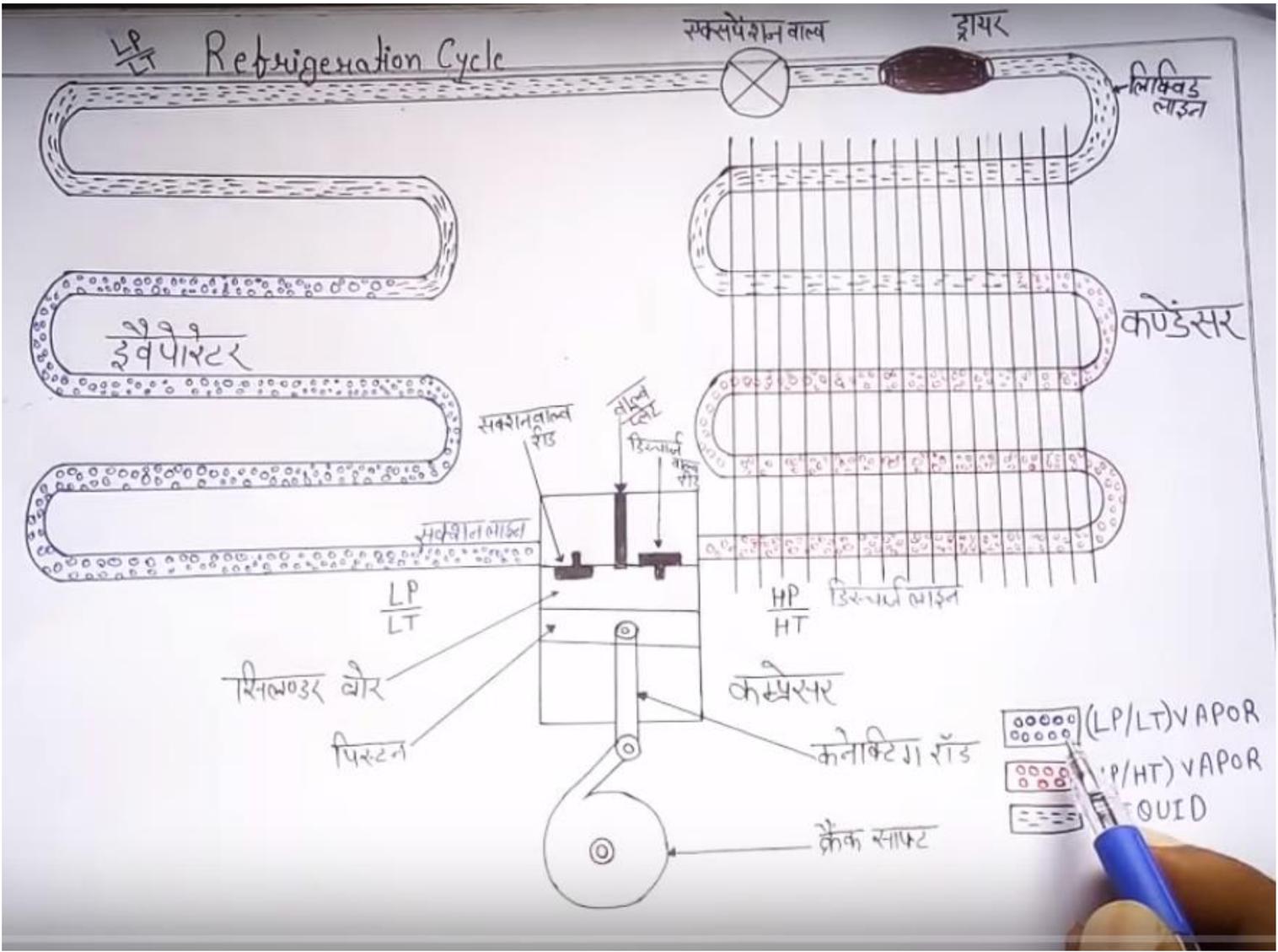


Fig: Refrigeration cycle

LP/LT Refrigeration Cycle



(LP/LT) VAPOR
 (HP/HT) VAPOR
 LIQUID