The Basic Direct Expansion Refrigeration Cycle
The Basic Refrigeration Cycle

Refrigeration is taking heat from someplace we don’t want it and moving it to someplace where it doesn’t matter.
The Basic Refrigeration Cycle

- Condenser
- Receiver
- Compressor
- Expansion Valve
- Evaporator

Refrigeration Cycle
The Basic Refrigeration Cycle

Compressor

- A pump compressing and moving refrigerant
- Changes a medium temperature low density gas to a high temperature high density gas
The Basic Refrigeration Cycle

Condenser Coil
- Refrigerant enters as a gas
- Air moving through the coil absorbs heat and cools gas
- The gas condenses into a liquid thus changing state
The Basic Refrigeration Cycle

Receiver

• A tank to store liquid refrigerant not being used to cool evaporator coil, required on systems with remote condensing unit
The Basic Refrigeration Cycle

Metering Device
- Thermostatic Expansion Valve (TXV)
- Capillary Tube
- Restricts flow of liquid refrigerant
- Reduces refrigerant pressure at inlet of evaporator coil
Evaporator Coil

• Fed a mixture of liquid refrigerant droplets and vapor by metering device
• Collects heat being taken by fan air stream from the conditioned space
• Heat used to “boil” droplets of refrigerant thus absorbing it in phase change to all gas
The Basic Refrigeration Cycle

Cycle Completion

• Gas is pulled into compressor
• Cycle is continuous
• Refrigerant is not consumed, it only changes state