

TIPS AND TRICKS

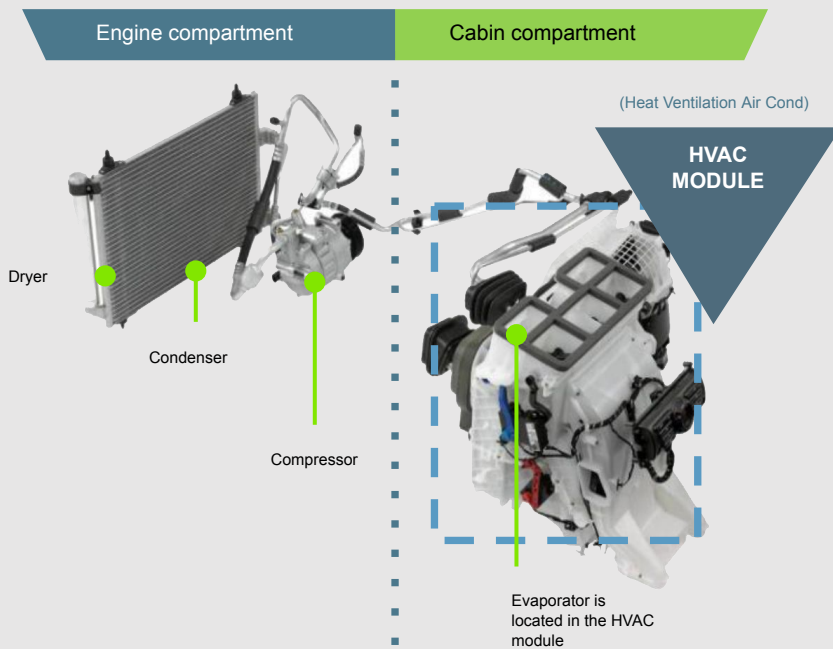
A/C, How it work?

Application

Vehicles equipped with A/C



System component overview



The purpose of the air conditioning is for driving comfort

The A/C components are divided into groups

- **Engine side:** Dryer, Condenser & compressor
- **Interior side:-** HVAC (Heat Ventilation Air conditioning), HVAC condians the evaporator unit



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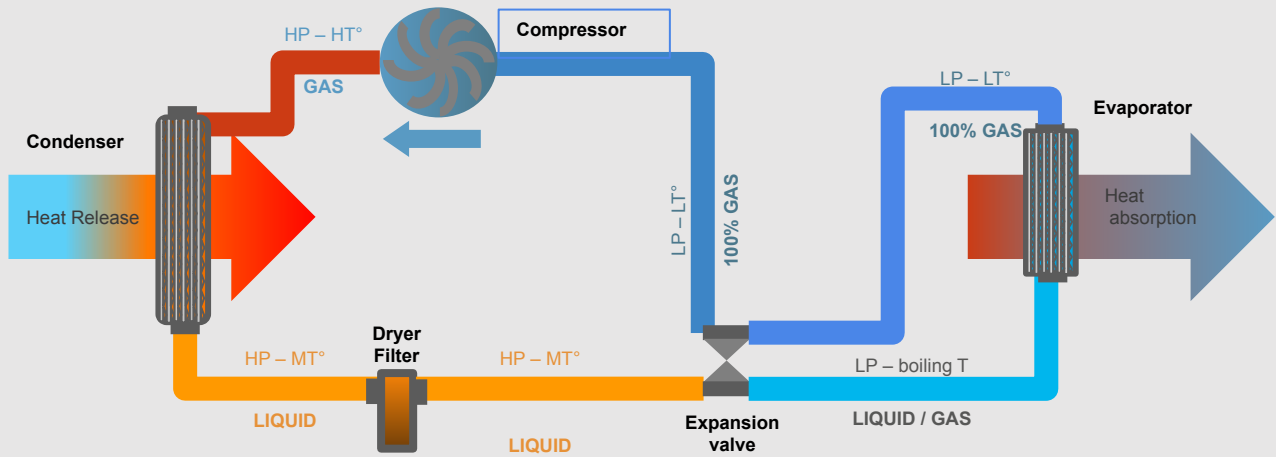


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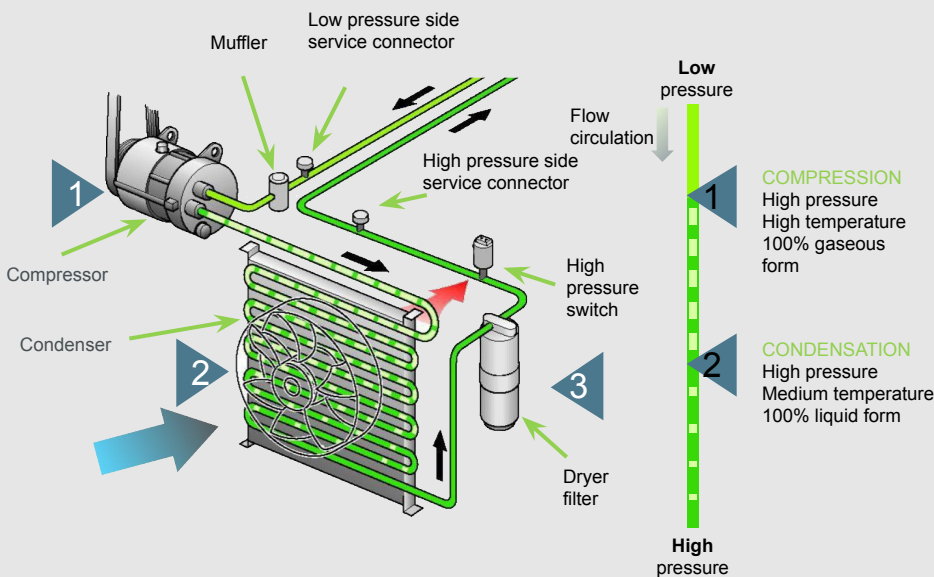


Air conditioning loop



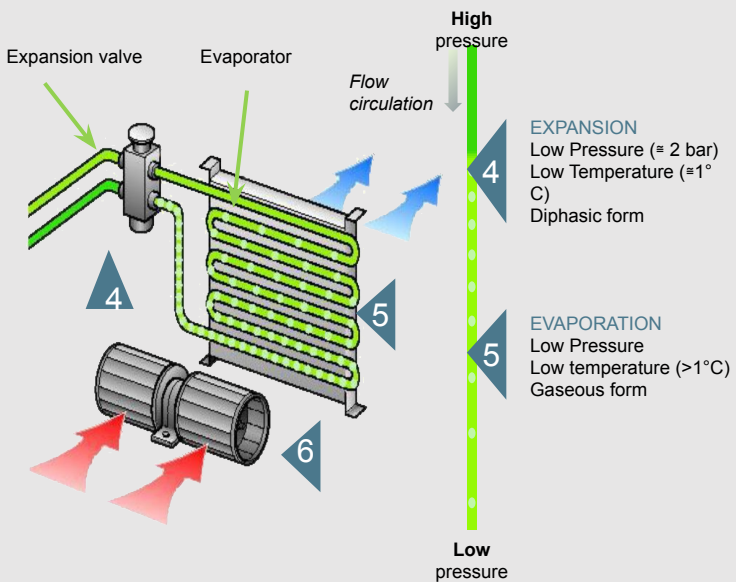
Loop section	Refrigerant status		
	Pressure	temperature	Status
Compressor to condenser	High	High	Gas
Condenser to expansion valve	High	medium	Liquid
Expansion valve to evaporator	Low	Very low	Liquid/gas
Evaporator to compressor	Low	Medium	Gas

A/C system with expansion valve



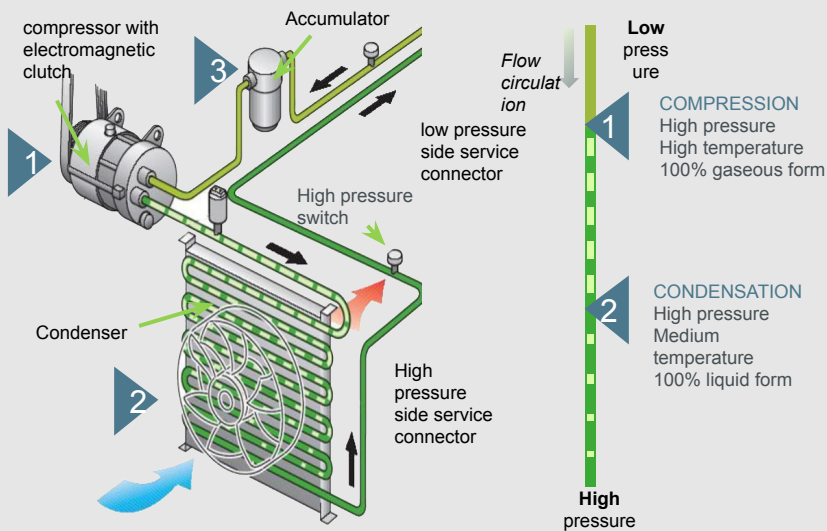
- Refrigerant is **compressed**, and as a result the **temperature increases**
- Refrigerant passes through the **condenser** where the **condensing process** starts, due to this action the status of the refrigerant changes from **Gaseous** to **liquid** states
- Refrigerant passes through the **dryer/receiver** to be **filtered** and **dehydrated** from any **moisture**.

A/C system with expansion valve

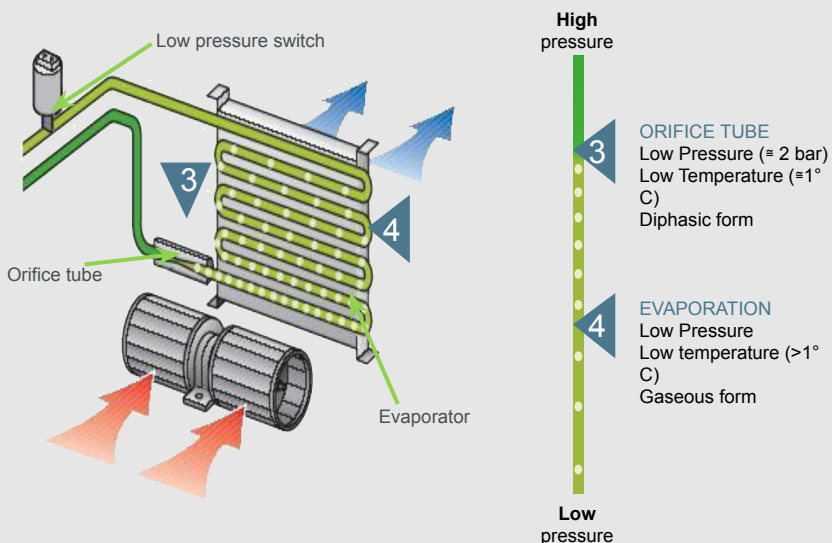


- After the dryer/receiver, refrigerant pass to **expansion valve**, resulting **low** temperature & pressure
- Final step, the refrigerant pass through the **evaporator** and **heat exchange** take place and **dehumidification** happens
- A **blower** is present in the **HVAC** unit to **distribute** the cold air in the evaporator to **lower** the temperature of the cabin

A/C system with accumulator/orifice tube

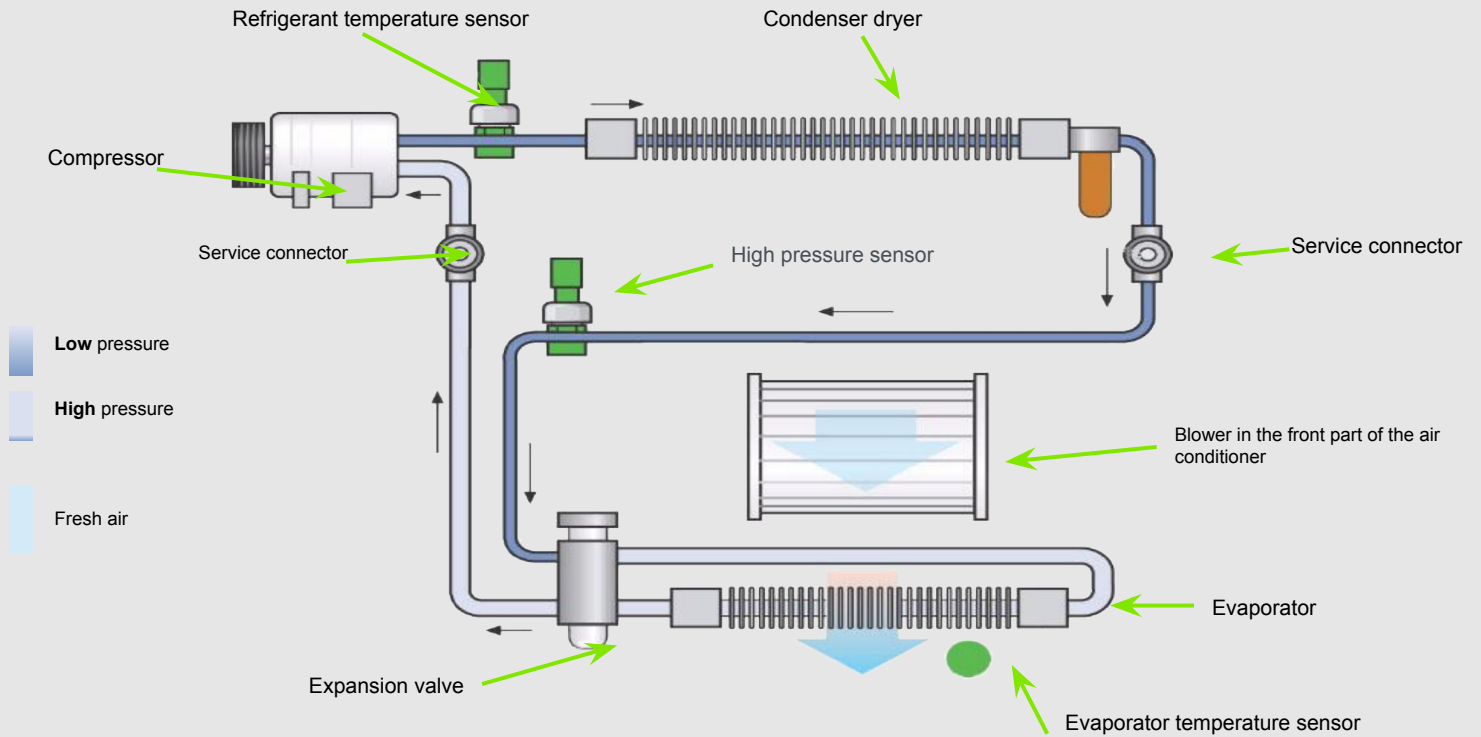


- A/C system with an **accumulator** and an **orifice tube** works in the **same way** as a **conventional system**
- The only **difference** is the expansion valve is replaced with orifice tube



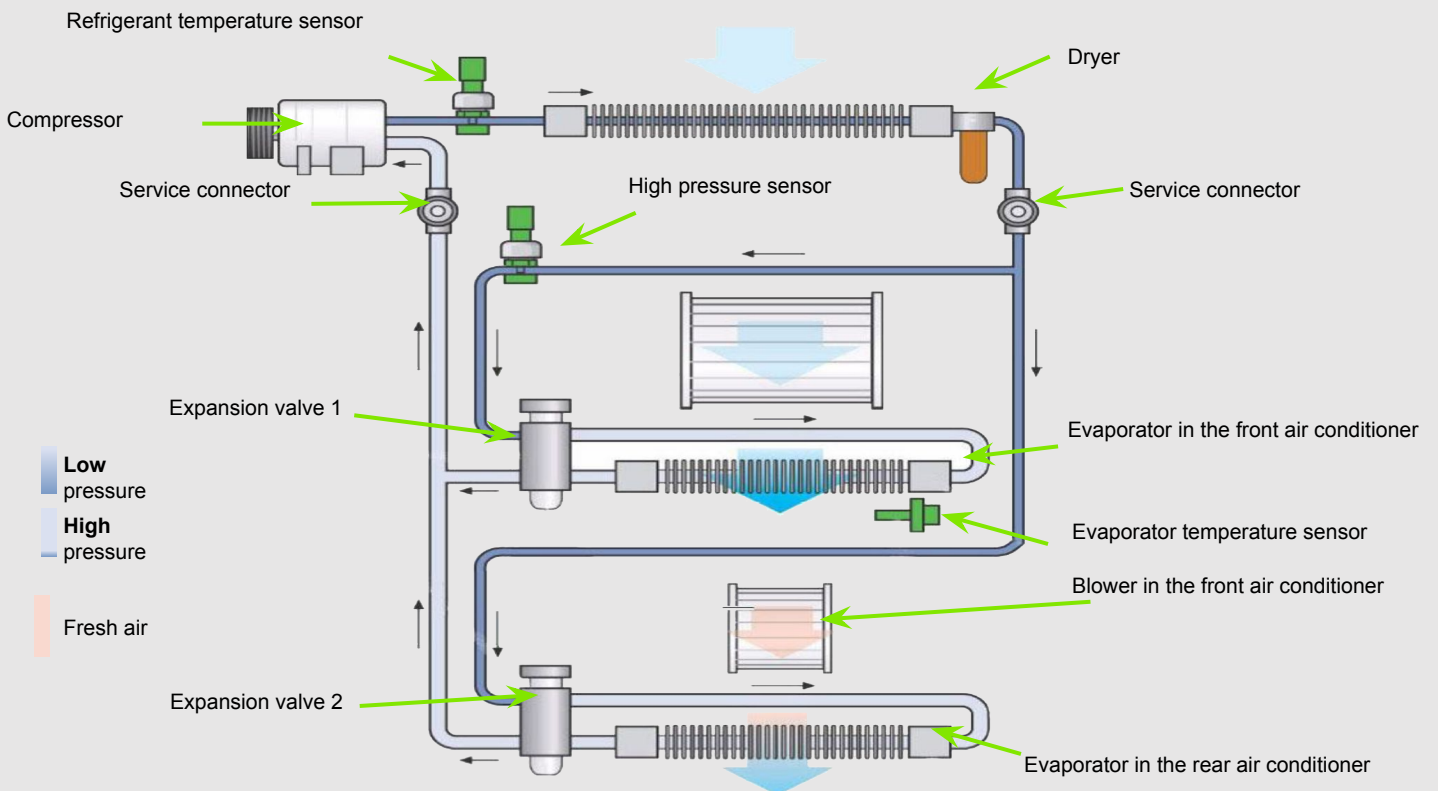
- It is located **before** the evaporator
- The orifice tube has a **specific** length and cross-section which **expands** the refrigerant.
- Unlike the expansion valve, it **can not** regulate **flow rate** and **overheating**

Cabin management cooling system for small vehicles



In small vehicles the cabin car contains **ONE** evaporator

Cabin management cooling system for large vehicles



In large vehicles like vans/bus, the cabins contain more **TWO** evaporators or more
And works like the ordinary system