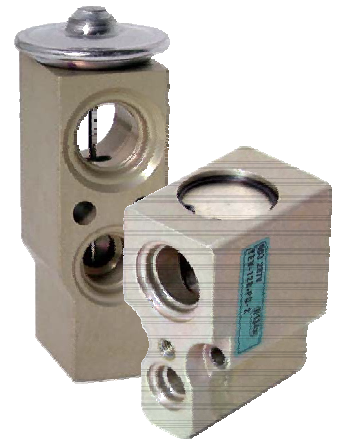




## Expansion valve

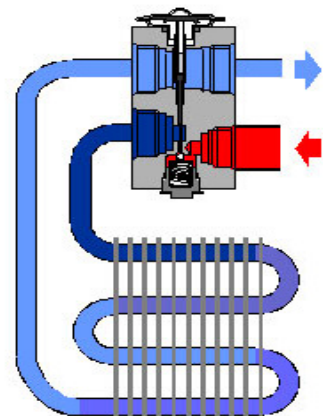
### General points

The expansion valve is the point of separation between high-pressure and low-pressure areas in the cooling cycle. It is mounted upstream from the evaporator. In order to achieve optimum cooling capacity in the evaporator, the flow of refrigerant is regulated by the expansion valve depending on the temperature. This guarantees the complete evaporation of the liquid refrigerant so that only gaseous refrigerant reaches the compressor. There are different designs of expansion valves available.



### How it works

The liquid refrigerant coming from the condenser through the filter-dryer flows through the expansion valve and is injected into the evaporator. The evaporation of the refrigerant releases evaporation cooling. This makes the temperature fall. In order to achieve optimum cooling performance in the evaporator, the flow of refrigerant is regulated by the expansion valve depending on the temperature. At the end of the evaporator the refrigerant is guided through the expansion valve to the compressor. If the temperature of the refrigerant increases at the end of the evaporator, it expands in the expansion valve. This increases the flow of refrigerant (amount injected) to the evaporator. If the temperature of the refrigerant falls at the end of the evaporator, the volume in the expansion valve will be reduced. In this case the expansion valve reduces the flow of refrigerant to the evaporator.



### Effects of failure

A faulty expansion valve can become noticeable as follows:

- Poor cooling performance
- Failure of the air conditioning system



## There can be various reasons for failure:

- Temperature problems caused by overheating or icing up
- Soiling in the system
- Leaks on the component or the supply lines

## **Troubleshooting**

**The following test steps must be followed in the case of a fault:**

- Visual inspection
- Acoustic test
- Check the connection pipes for a tight and correct fit
- Check the component and connections for leaks
- Temperature measurement in the pipe system
- Pressure measurement with the compressor switched on and the engine running