

4.4 Safety devices

(1) High pressure switch (HPS)

If the refrigerant pressure of the high pressure side becomes abnormally high, the high pressure switch stops the operation of the unit automatically, preventing it from breaking down. It is installed on the discharge pipe.

The bellows of the switch accepts the discharge pressure and translates the force to the lever.

When the discharge pressure is higher than the pressure setting, the bellows of the switch pushes the lever, the electric contact opens and the compressor stops.

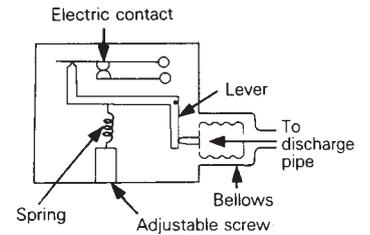
Fig.4-64



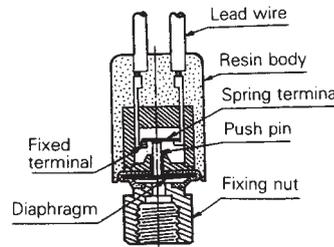
(3)



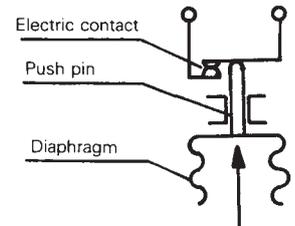
(1)



(2)



(4)



(5)

(2) Low pressure switch (LPS)

If the refrigerant pressure of the low pressure side becomes abnormally low, the low pressure switch stops the operation of the unit automatically, preventing it from breaking down. It is installed on the suction pipe. The bellows of the switch accepts the suction pressure and translates the force to the lever.

When the suction pressure is lower than the pressure setting, the bellows pulls the lever, the electric contact is open and the compressor stops.

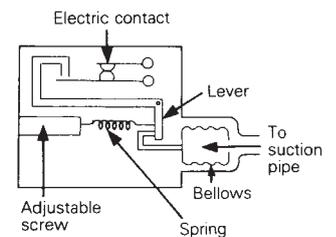
Fig.4-65



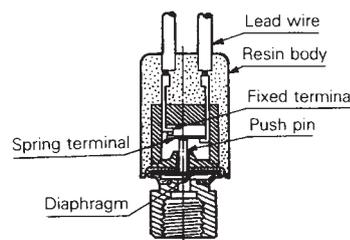
(3)



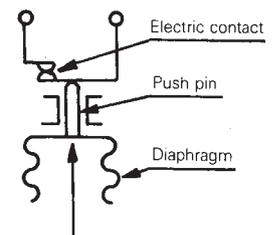
(1)



(2)



(4)

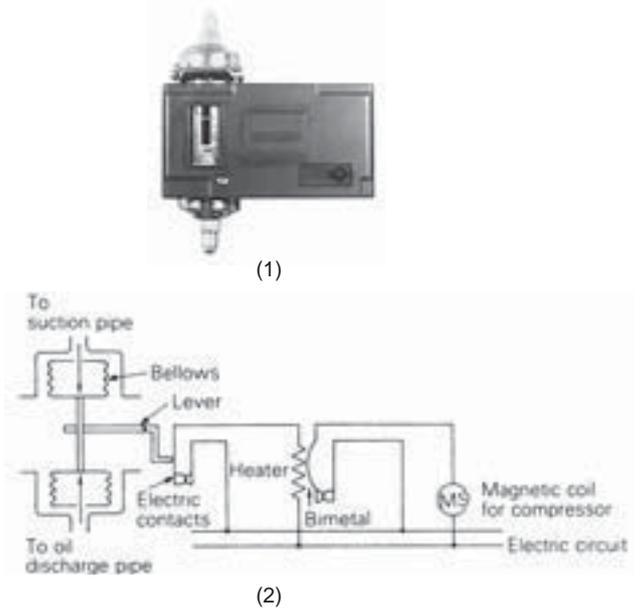


(5)

(3) Oil pressure switch (OPS)

The oil pressure switch is used in the large size unit having the semi-hermetic compressor to prevent the compressor metal from burning. It is installed on the discharge pipe. When the oil pressure does not rise to the required level within the predesigned period (approx.45 seconds after starting the compressor), this switch will automatically come into operation to stop the compressor and protect it from burning out.

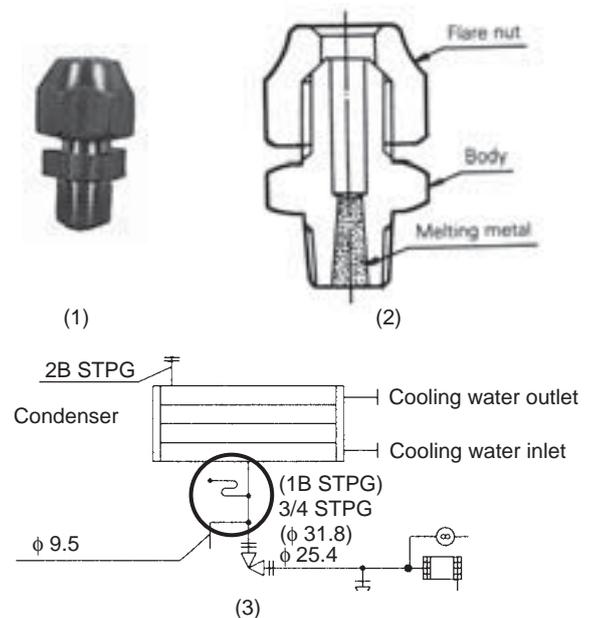
Fig.4-66



(4) Fusible plug

In case fire takes place or the high pressure switch does not work properly, the fusible plug or the safety valve (which is stated next) prevents the unit from accident. The fusible plug is used in the small unit and is installed in the condenser or the liquid pipe between the condenser and the metering device. When the condensing temperature becomes higher than the temperature setting (approx.70~75°C), the fusible metal melts and the refrigerant is blown out.

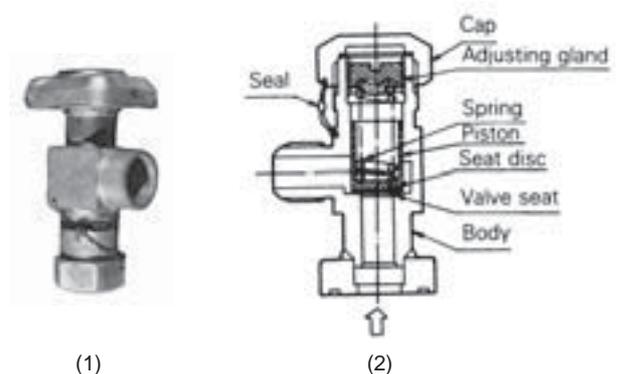
Fig.4-67



(5) Safety valve (relief valve)

The function of the safety valve is the same with that of the fusible plug. The safety valve is used in the large units and is installed in the condenser. When the condensing pressure becomes higher than the pressure setting, such pressure pushes open the sheet valve and the refrigerant is blown out.

Fig.4-68





(6) Pressure regulating valve

This valve opens at a certain pressure difference for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.

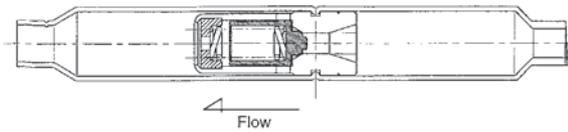
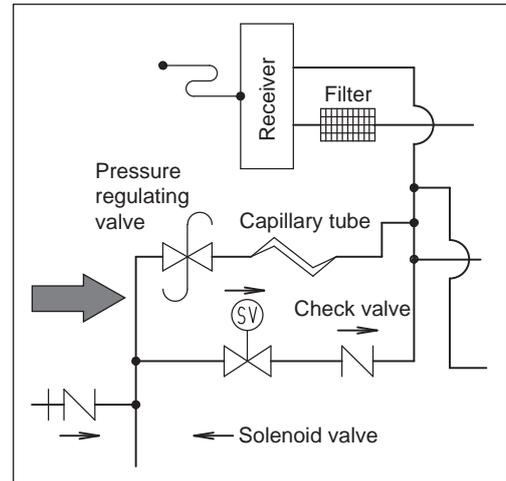


Fig.4-69



(7) Stop valve

This valve is used for closing or opening the refrigerant circuit and normally located on an outdoor unit. It does not regulate the flow rate of refrigerant, because full-close or full-open style is normal. Typical two types of stop valve are shown on the right.

Fig.4-70

