Two Types of Chillers Absorbing and Compressive

In spite of the fact that these refrigeration devices are intended to cool they vary greatly due to their design, purposefulness and functionality. Here some of them:

Absorbing chillers

As the main source of energy for the cooling process absorbing units use either hot water at a certain temperature (130 C) or superheated vapour (under pressure up to 1 bar). Thus, the use of low-temperature or secondary energy resources such as a thermal power plant, waste incineration plant, power plant and others will effect an essential saving in developing cooled water. As a rule it is used distilled water in the capacity of refrigerating fluid and lithium bromide as an absorbent. Besides the economy of energy supply there is one more definite advantage over other types of refrigerating machines. This absorbing type contains very few moving parts in the structure and as a result this fact provides high reliability of the unit. The only central failure is that absorbing type of refrigeration device has higher expenditure of energy than compressive ones. Also it should be noted that they are costly to buy and maintain.

Compressive chillers

The widest class of chillers are based on compressive cooling cycle where fundamental structural components are a compressor, evaporator, condenser and a flow control device. All the structural components are connected sequentially with each other by tubing and thus form a closed system where the compressor is responsible for the circulation of the refrigerating fluid (freon). The cooling process in the refrigerating device is provided by persistent circulation, boiling and condensation of the refrigerant in closed system. The boiling of the refrigerating fluid (freon) is the result of low pressure and temperature.

Vaporous refrigerating fluid is sucked in by the compressor which increases its pressure. Further on the hot vaporous refrigerating fluid is cooled and condensed; it passes into a liquid phase. The condenser can be either air or water it depends on constructive execution of the refrigerating system.

After that the liquid refrigerant being at high temperature and under pressure moves on to the flow control device where the pressure decreases dramatically, as a result some of the liquid can turn into vapour passing into gas phase. Thus the blend of gas and liquid gets into the evaporator. The liquid boils in the evaporator absorbing the heat from the cooling medium and pass into a vaporous state again. The size of the evaporator is designed to let the liquid completely be converted into vapour inside it. That is why the temperature of the steam coming from the evaporator is higher than the boiling temperature and this results overheating of the refrigerant in the evaporator. In this situation even the smallest drops of the refrigerant evaporate and no liquid gets into the compressor. After that overheated vapour coming out from the evaporator renews the cycle. Thereby the refrigerating fluid constantly circulating changes its state of aggregate from liquid into vaporous and vice versa. This information is hoped to give you some ideas about absorbing and compressive chillers.

About the Author

Total Process Cooling are in no doubt that our wide range of chillers can provide your business with the best cooling solution.

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