APPLICATION

District cooling (DC)

District cooling (DC) is based on cold water being distributed in a network of pipes to provide cooling to a number of buildings like offices, hospitals, industries etc. The cold water pumped around the district cooling network is used to cool the air circulating in the properties´ ventilation system. The same water is then fed back to the production plant to be cooled again.

In a DC production plant, one or a combination of the following production techniques are most common.

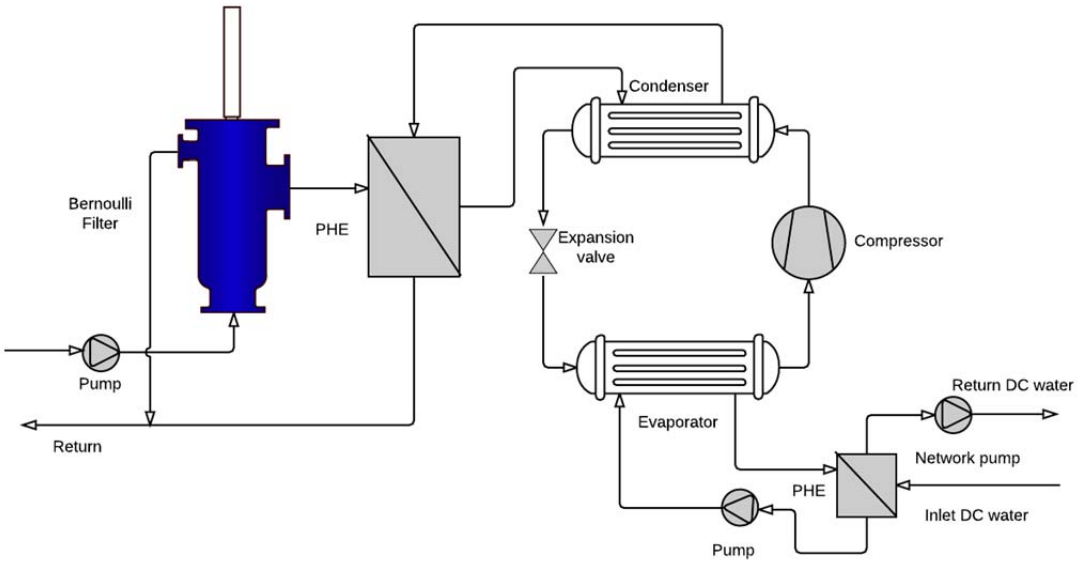
Absorption chiller
Surplus heat from i.e. industrial processes or power production may be used for cooling production by integration of an absorption chiller to the plant since absorption chillers use heat as primary energy and not electrical power.

Heat pump
The use of heat pumps is the most common way of producing district cooling since they are able to produce both heating and cooling at the same time.

Free cooling
Free cooling involves utilizing cold water from lakes and seas as a source of cooling. Water at temperatures of around 4 degrees is pumped and used to cool the water circulating in the district cooling network by means of heat exchangers. The return water is then released back into the sea or lake.

To increase the efficiency and reliability, the production techniques are often combined with different kind of storage solution, such as seasonal storage, like an aquifer solution, where free cooling in winter is stored for use during the summer period or night-to-day storage, often as ice or water storage solution, where the overcapacity during the night is stored for use during daytime.

In a DC system the Bernoulli filter plays a vital role to protect plate heat exchanger from fouling and clogging when used for free cooling or in heat pumps with raw water from lakes, rivers and sea as natural cooling source.



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