Source:JASE-W Japanese Smart Energy Products & Technologies
https://www.jase-w.eccj.or.jp/technologies/index.html

						S5	renewable energy
F-08	Keywords	Y2	device	Z4	electricity	L	Technical Services

Heat Pump and Thermal Storage Technology Center of Japan

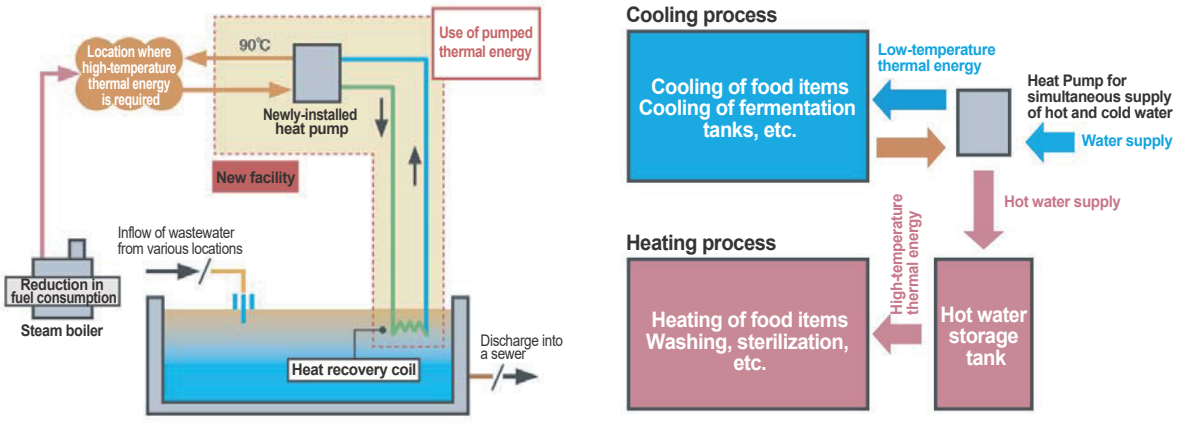
Industrial Heat Pump

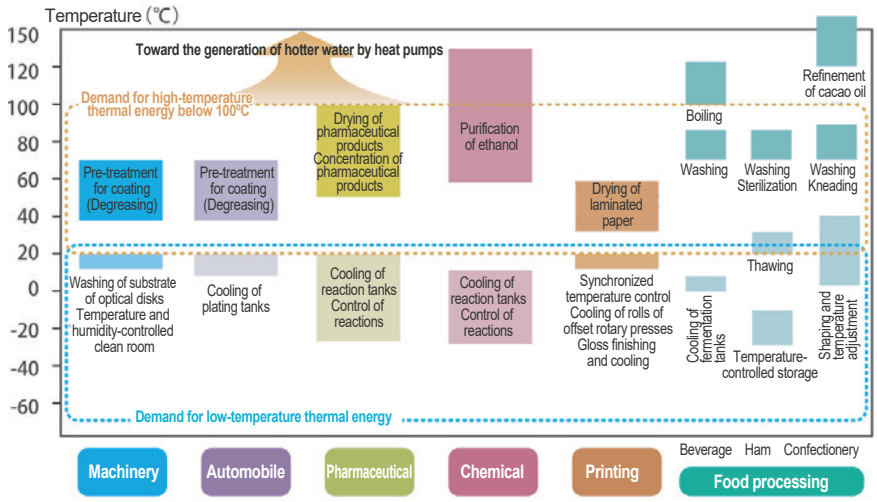
Features

- The heat energy originated from the sun is stored in the natural environment, i.e. in the air, in water and underground. “Heat pumps” convert such heat energy into usable energy which can be used for air-conditioning, hot-water supply/water supply and heating and drying.
- Heat pumps are highly energy-efficient because they use the heat energy in the air and in water, instead of fossil fuel, as an energy source. Therefore, reduction in the CO_2 emission is expected from the use of them.
- High temperature heat pumps have been developed. They can meet the entire demand for the supply of hot water below 120ºC. Therefore, it is possible to replace large centralized facilities such as boilers by distributed facilities including industrial heat pumps. This replacement will lead to significant energy saving with the reduction of heat loss including that from piping and to drains.

Basic Concept or Summary

- Waste heat recovery heat pumps [Use of wasted heat]
  - Unusable waste heat in tens of degrees can be used as an effective heat source.
  - Even if there is time lag between waste heat generation and demand for heat, it is possible to use waste heat without loss by installing heat storage tanks to store the heat transferred by the heat pumps.
- Heat pumps for simultaneous supply of hot and cold water [streamlining of cooling and heating]
  - This heat pump technology has made it possible to use cold and high-temperature thermal energy simultaneously.
  - Highly efficient operation can be achieved in plants where both cooling and heating are required, such as food processing plants, with the use of these heat pumps.
  - The simultaneous generation of the two types of thermal energy has improved the energy efficiency of the cooling and heating processes by nearly two-folds compared with the previous models and, thus, contributed to the improvement in energy efficiency of entire plants.

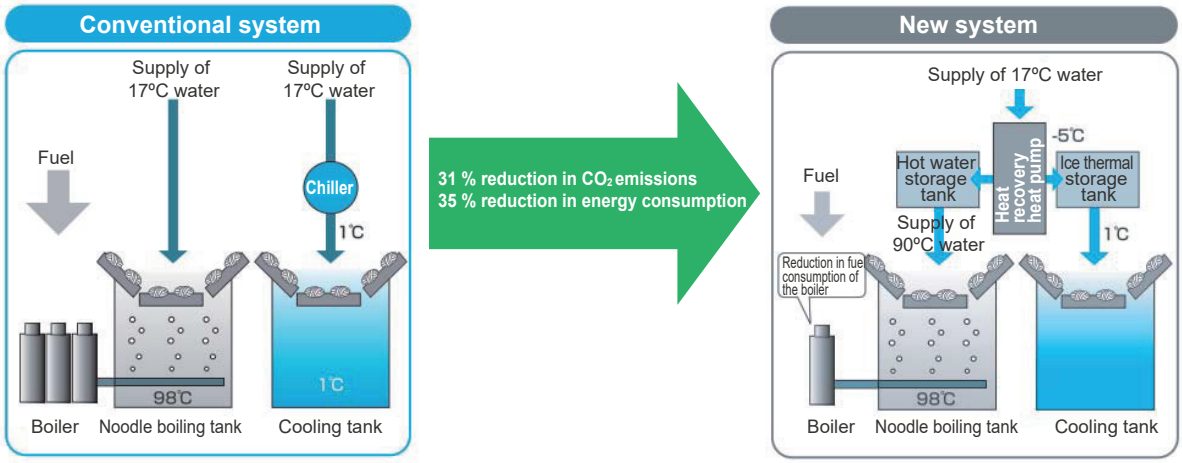




Examples of the use of heat pumps in major industries

Effects or Remarks

◆ Noodle plant [The use of heat recovery heat pumps has made it possible to supply hot and low-temperature thermal energy simultaneously.]



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